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ABSTRACT

This collection stresses the need for informed and more sophisticated marketing techniques for college admissions officers to help them cope with the decreasing number of prospective college students. The importance of the college admissions office is increasing as admissions becomes a more crucial element to the colleges' financial well-being. The collected papers provide an appraisal of what the situation in college admissions will be like for the next few decades. Presentations include: The Future Market for College Education (Humphrey Doermann); Applying Marketing Theory to College Admissions (Philip Kotler); The Positioning Era: Marketing Strategy for College Admission in the 1980's (Howard Geltzer and Al Ries); and Using Research in Analyzing Student Markets: A Case Study (Daniel F. Sullivan and Larry H. Litten). Introductory remarks by John M. Duggan are also included. (BH)

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A ROLE FOR MARKETING IN COLLEGE ADMISSIONS

College Entrance Examination Board

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A ROLE FOR MARKETING IN COLLEGE ADMISSIONS

Papers presented at the Colloquium on College Admissions
May 16-18, 1976
at the Abbey on Lake Geneva, Fontana, Wisconsin

College Entrance Examination Board
New York 1976

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Introduction

All of us associated with college admissions through the last decade know that though the rules have not changed much, it is beginning to be a new ball game. What the game will be like, who the players are likely to be, how to understand it, plan for it, and cope with it were the topics of the Colloquium on College Admissions sponsored by the College Entrance Examination Board at the Abbey on Lake Geneva in Fontana, Wisconsin, May 16-18, 1976. The papers presented there were considered by the participants to be so helpful and timely that they are published here through the auspices of the College Board.

Considering some of the forecasts for higher education, and in particular, for private higher education, you might expect a paper or two on how to close a college with grace and style, or how to merge with a neighboring college, how to become part of a state system, or how to become coeducational. Instead, you will find a reasonable, cautious, sober appraisal of what the situation in college admissions will be like in the next several decades and what to do about it besides becoming an insurance salesman.

The opening paper, "The Future Market for College Education," is Humphrey Doermann's second look at the collegiate applicant pool. In 1968, while a dean at Harvard College, he published the first description and projection of high school graduates.[1] That study did not, in my opinion, attract the attention and credibility it deserved from those who establish policy for higher education. Now, however, the dwindling numbers of relatively able and affluent high school graduates is more apparent. This second study projects a 15-year period of no-growth or retrenchment in higher education and a shrinkage in the number of high school graduates of 15 percent by 1984 and 22 percent by 1990.

Clearly, the ways in which federal and state governments respond with programs of assistance to families unable to meet college costs will affect enrollments. So, too, will the numbers of adults and their willingness to pay have a marked effect on the size of the higher education enterprise. Future economic conditions, job markets, the esteem or lack of it with which the public regards a college education, all unpredictable, compound uncertainty. It is ob-

1. Humphrey Doermann, *Crosscurrents in College Admission.* New York: Teachers College Press, New York, 1968.

vious, however, that expansion—the mode of higher education in this country for a century—is over.

How we will respond to declining enrollments is not yet clear. While competition of a gentle sort has always characterized relationships among colleges, it is conceivable that more competition will erode the minimal cooperation that now exists among colleges, particularly between public and independent sectors. No-need scholarships for able students, diminished state aid to independent colleges, cut-throat recruiting, and antagonistic lobbying at state and federal levels may well increase.

Campus climate may also suffer; strict tenure ratios, discontinued programs, dismissed tenured faculty members, increased class size, unionization of faculty and staff, cutbacks in scholarship aid and in new, worthwhile, but expensive programs, not to mention a generally adversarial atmosphere, are already present or at least imminent. And most of us are not geared for that. For years, college presidents—except during the period of student unrest—looked good. Burgeoning enrollments, new buildings, increased state and federal aid, an inflationary but expanding economy, and growing faculty salaries made heroes or at least acceptable presidents out of average mortals. Now, however, cost consciousness, cutbacks, huge deficits, and even parking fees in faculty parking lots have cost more than one administrator a vote of no confidence.

Humphrey Doermann's sober predictions and thoughtful analyses provided the context for the participants to consider ways and means to cope. Philip Kotler, a distinguished marketing professor at Northwestern University, provided an array of available coping strategies in his paper, "Applying Marketing Theory to College Admissions." You can imagine the trepidation with which admissions officers might view "marketing." But Philip Kotler's disarming and moralistic exposition of marketing theory and practice—in particular his distinction between advertising and marketing—proved stimulating and provocative. While some of marketing theory as applied to college admissions is good common sense, one advantage of the carefully worked out theoretical model Kotler presents is that it provides a ready method for checking out your own college's approach to marketing itself to be sure that no possible step or technique is overlooked.

While Philip Kotler's paper provides the broadest assessment of marketing methods for colleges, Howard Geltzer, president of Ries & Geltzer, a New York public relations agency, provides a de-

scription of a recent technique or strategy of marketing called "positioning" in his paper, "The Positioning Era: A Marketing Strategy for College Admissions in the 1980s." His thesis is that because we live in an overcommunicated society, simply listing the attributes of a college to prospective students is insufficient. The position, relative to other colleges, that your college occupies in the public's mind is the key.

Both Kotler and Geltzer urge the use of market research to find out what prospects think about your college, and the fourth paper published here tells you how to do so. Professor Daniel Sullivan, a sociologist, describes his work at Carleton College in his paper, "Using Research in Analyzing Student Markets: A Case Study." Sullivan's study shows how much useful information critical to planning an admissions program can be determined from careful questions put to those prospective students who inquire but do not apply, those who are accepted and do not enroll, and those who do enroll. His analyses shed light on the role of the interview, and indeed, the effectiveness of individual interviewers, the usefulness of the campus visit, the effects of location, cost, reputation, and the availability of financial aid. The Sullivan paper provides a model for admissions research.

What did these four papers and the ensuing discussion add up to for the Colloquium participants? Most assuredly the role of the admissions officer of the future and the scope of that officer's concerns will be broader. The director of admissions, although always a key figure in the administration, will be even more prominent as admissions becomes a more crucial element to colleges' well-being. The admissions director of the eighties had better understand the *system* of higher education, the numbers of students in the available pool, locally and nationally, their range of abilities, their financial resources, federal and state aid available, the realignment of independent and public systems, the legislation being considered or required. As admissions people become better informed about the national picture and its trends, they will also be required to insist that their institutions' policies adequately reflect reality. Even more than this, admissions directors can help galvanize their administrations, their boards of trustees, their state legislatures, their representatives at national associations and in the federal government to help shape the system. If, for example, as Humphrey Doermann contends, the ways in which federal funds now allocated to a declining veterans educational benefits program are reallocated

will make a significant difference between steady and declining enrollments in colleges and universities, then we had all better learn now to lobby effectively.

The need for a respectable research facility to develop a more effective admissions program was stressed once again. So many college and university programs and procedures are terminated or inaugurated without adequate evidence of their effectiveness. At a minimum a well-run admissions office will make systematic efforts to collect pertinent information to help answer everyday problems. When sophisticated research is required, the office of institutional research can be used, or a good case can be made for starting one. Sociologists or marketing professors can and should be of help in this area so crucial to institutional well-being.

The need for informed and more sophisticated marketing techniques will require a new set of skills for many admissions offices. The College Board will need to become even more involved in helping colleges understand their markets. The Student Search Service, an important step in this direction, should be continually modified and support services be provided to help colleges use the program as effectively as possible.

Admissions staff should, in their institutions' best interest, insist that an alternate plan or plans to a steady state be developed. These plans should lay out procedures for adapting to a declining enrollment in the event that it becomes unavoidable. It is incumbent on those responsible for fulfilling enrollment objectives to sound an early warning so that affected colleges are not caught by surprise.

The role of the admissions person continues then to evolve and change with demographic and economic circumstances. Though always the key communicator with the colleges potential applicant group, the modern admissions person will need to understand better than ever the potential market and sophisticated methods needed to present his or her college's case persuasively but honestly.

Colleges and universities, the College Board, and other educational organizations should take note of the negative view of higher education often presented by the "media" particularly in times of high unemployment. The college-educated apple purveyor, however humorous in cartoons, tends to diminish the value of the college degree in the public's view. Effective marketing of higher education that stresses the positive, long- and short-term values of the developed mind is required.

The reinstitution of the Colloquium series, if this Colloquium turns out to do that, would be a welcome addition to the array of services and programs offered by the College Board. Between the years 1954 and 1963 school and college representatives gathered annually to hear thoughtful papers and to discuss matters of importance to the world of admissions. The publications resulting from these Colloquiums make a valued collection of readings for experienced and beginning admissions people. This publication and this Colloquium will, we expect, do so as well.

All of the participants would want me to acknowledge their thanks to Darrell Morris, Executive Associate of Program and Field Services at the College Board, who planned this event, and to the Advisory Committee that developed the program: Roger H. Campbell, Director of Admissions and Financial Aid, Northwestern University, Evanston, Illinois; Thomas Huddleston Jr., Dean of Admissions and Financial Aid, Bradley University, Peoria, Illinois; Morris Phelps, Director of Admissions, University of Georgia, Athens, Georgia; and Elizabeth Vermey, Director of Admissions, Bryn Mawr College, Bryn Mawr, Pennsylvania. We are all grateful to the authors of these papers, to the College Board for sponsoring this event, and to the Board staff members and those of Educational Testing Service, who carried it off so well.

John M. Duggan
President, St. Mary's College, South Bend, Indiana
Colloquium Director

The Future Market for College Education

by Humphrey Doermann

Summary

Following a century of expansion, higher education in the United States is about to enter at least a 15-year period of either no growth or shrinkage, depending on the projection assumptions one makes and upon the decisions made by federal and state governments concerning public policy in this sector. If public policy changed sufficiently, slow growth could continue. Meanwhile, the number of high school graduates each year will soon begin to shrink: 15 percent by 1984 and 22 percent by 1990.

This study describes annual crops of high school graduates in selected years from 1964 to the present, and projects ahead to 1984. These graduates are described jointly by measured verbal aptitude and by family income. The study discusses constraints and opportunities in student recruitment caused by the shape and size of this traditional market for college education. As the market changes, new opportunities and severe new problems will arise. Colleges will seek to broaden their own effective pools of applicants in familiar ways and in new ones. Competition will increase, sometimes in healthy ways, sometimes not. For colleges seeking major new sources of students, two crucial factors appear to be: (1) whether federal and state governments are willing to underwrite during a period of predictable budget stringency a new attempt to broaden access to postsecondary education, aiding students who might benefit from it but do not now participate; and (2) whether in part-time and other adult collegiate programs the major questions of pricing, program design and public subsidy can be successfully resolved.

Whatever these outcomes may be, the general pressures of steady or declining enrollment probably will place individual colleges and systems of colleges under strains they were not designed for. The principal casualty is most likely to be the capacity of these institutions to adapt and to preserve vitality. This appears almost certain unless the new conditions can be addressed soon with intelligent analysis, forebearance, and ingenuity.

Introduction

During the 100 years prior to 1970, degree enrollment in colleges in the United States doubled approximately every 14 or 15 years. Dur-

ing the 1950s and 1960s the rate of expansion was even faster. Never has there been a long period of enrollment decline. Brief declines occurred only during the two world wars, the Korean War, and in 1933-34.[1] Expectations, planning processes, federal and state budgeting mechanisms, and the administration of colleges and college systems have until recently all been built with an assumption of continued growth in enrollment. Some of these fundamental elements still are built that way, but for a time probably ought not to be.

Once we move beyond the next 20 years, the traditional forces of growth may take hold again. By then the population of 18-year-olds probably will expand, the number of high school graduates probably will grow again, and colleges will hire relatively large numbers of new faculty members to replace the retirees who were appointed during the sharp expansion of the 1960s. If the rest of the national economy is healthy, the first part of the 21st century should be a time of optimism for colleges.

But the period from now until the mid-1990s looks different. Of the many enrollment projections that have been made recently, only a few of them estimate enrollment growth, arguing that an expanding and sophisticated economy demands an expanding college sector regardless of the changing age structure in our society. Several other studies project relatively little change in total enrollment. These note that since the number of high school graduates will decline during the next 20-year period, recruitment of adult students must make up the difference somehow. Finally, a few authors estimate total enrollment reductions by the year 2000 of as much as 33 percent. They reason from recent wage trends that the apparent economic return (in increased lifetime earnings) resulting from college attendance is declining. This loss of incentive, they believe, will cause a much smaller proportion of high school graduates to enter college during the next 20 years, until the education-intensive portion of the labor market once more becomes short of college graduates and until college degrees again begin to command a larger wage premium.[2] Whether we believe the no-growth

1. Carnegie Foundation for the Advancement of Teaching, *More Than Survival: Prospects for Higher Education in a Period of Uncertainty.* San Francisco: Jossey-Bass, Inc., Publishers, 1975, pp. 24, 25.

2. Carnegie Foundation for the Advancement of Teaching, *op. cit.*, Appendix B. Probably the most severe enrollment-decline model that has received significant attention is the one designed by Stephen P. Dresch, "Demography, Technology, and

projections, the sharp-decline projections, or something in between, colleges appear to face a decade or two of unprecedented stress, competition, and perhaps retrenchment. This must happen unless fundamental changes occur that define in a different way who goes to college and why.

This paper deals with three main subjects that are directly or indirectly related to the changing population trends facing colleges in the next 10 years. First, it will analyze changes occurring in the "traditional" market for college education – high school graduates who may immediately or soon go on to college. This group of high school graduates still supplies more than three-quarters of all undergraduate enrollment. This group also will probably decrease in size by 15 percent by 1984, and by 22 percent between now and 1990. The paper then comments on ways in which colleges might hope to broaden their applicant pools, and on the major opportunities and problems they face in attempting to do so. Several related public policy questions also appear to require new attention now, before any broad trend of enrollment decline sets in.

Appendixes B and C form the base for much of the discussion in the paper. They also provide college admission officers and other analysts of the "traditional" college student market a practical set of tools to help analyze questions of admission, tuition, and financial aid policy in individual colleges. These tools also may help analyze questions of need and cost in federal and state financial aid programs. Appendix A preceding the tables provides illustrative questions and describes how to use the tables to answer them. Appendix D describes how the tables are constructed.

1967 Estimates of Academic Aptitude and Family Income: Early Conclusions and Later Trends

The first such tables estimating academic aptitude and family income were compiled in 1968. They were published in *Crosscurrents in College Admissions* and covered selected years between 1954-55 and 1974-75.[3] At that time it seemed natural to draw the following broad conclusions from the tables.

1. The number of students prosperous enough to pay full tuition

Higher Education: Toward a Formal Model of Educational Adaptation," *Journal of Political Economy*, 1975, Vol. 83, No. 3, pp. 535-569. The Dresch model does not deal either with nondegree enrollment or with enrollment behavior of adults over 25.

3. Humphrey Doermann, *Crosscurrents in College Admissions*. New York: Teachers College Press, 1968.

at private colleges and academically able enough to do satisfactory work at most of them is a relatively small portion of the total high school graduate population. The many colleges that plan to expand by enrolling more students of this kind will not succeed; the applicant pool is too small.

2. Colleges that attempt to raise tuition faster than family incomes rise and colleges wishing to raise dramatically the measured verbal aptitude of their entering students are likely to find these moves unexpectedly difficult unless they are also willing to decrease enrollment, or somehow are able to broaden and strengthen their applicant pool.

3. Important federal and state policy questions are (1) what will be the practical definition of universal opportunity for post-high school education, and (2) how much public money, administered with what program design, is needed to make adequate progress toward universal opportunity? How will that progress be monitored? The students who might benefit from further training, and who might wish it but fail to continue because they lack funds, appear to be predominantly students of low income and of middle- or below-average measured aptitude.

4. Financial pressures, increasing signs of competitiveness in student recruitment, and the desire of many colleges to enroll as many high-testing students as possible may combine to stratify our colleges so that the students within each college become more alike in background, prior academic training, and scholastic aptitude. The "winning" fast-track colleges will define by their products what the fast-track graduate schools wish to require in admissions. The unusual second-chance quality of our educational system thus may become significantly eroded. The trajectory of individual careers may become fixed more frequently, particularly for business management and the professions, at some time in secondary school.

As the second edition of tables is prepared here, we can look back and ask: Which conclusions were helpful, and which were misleading? What appears to be different this time? How reliable are the new conclusions we are tempted to draw? A review of the 1968 *Crosscurrents in College Admissions* work suggests that the first two conclusions, which were most closely related to the tables of high school graduates, were also the most reliable. Reasoning that required other assumptions about public spending or about general rules of administrative behavior was more often wrong.

The first conclusion in the earlier work was sufficiently correct

that it seems now as if it must have been obvious for a long time. The pool of high school graduates that one might define as both prosperous and academically able is both relatively small and recently has been growing quite slowly. Nine years ago this did not seem so obvious. The second conclusion proved generally true. A number of individual colleges that were unusually fortunate, prosperous, or energetic were able to move against the prevailing pressures. Their recruitment gains, however, often gave unwanted problems to others. For example, the new success enjoyed by selective northern colleges in recruiting black students from the southern states presented severe competition to the most selective of the predominantly black colleges in the Southeast. The ability of colleges in Illinois to hold more students in state with the help of a well-funded state scholarship and grant program forced the redirection of private college recruiting efforts in neighboring states. The growth of community colleges often changed the competitive balance in local or regional networks of colleges, at the same time as that growth attracted new students to postsecondary education.

As to the third item, the questions about federal and state policy and performance seem as valid and as unanswered as they seemed nine years ago. To what extent do low-income students, a high proportion of which are minority-race students, now have appropriate access to postsecondary education? More data is available now than it was in 1968, but not enough to show the extent to which public expenditure policy is succeeding or to show the standards by which such success is measured. Whatever the lack of knowledge or clear policy, however, huge increases in expenditure did occur between 1970 and 1975. Table 1 on page 6, probably incomplete, summarizes the major spending increases.

Between 1970 and 1974 the enrollment of black students in college increased by 56 percent while the corresponding white enrollment increased 15 percent. By 1974 the college participation rates for blacks and whites were approximately equal within any major income class, although a much higher proportion of black families than white are low-income families. A higher proportion of all students from families earning $10,000 or less a year attended college in 1974 than in 1970.[4] Some progress, perhaps significant progress,

4. U.S. Bureau of the Census, "School Enrollment – Social and Economic Characteristics of Students: October 1974," *Current Population Reports*, Series P-20, No. 286. Washington, D.C.: U.S. Government Printing Office, 1975, pp. 4-6.

toward universal access to postsecondary education has been made. But no recurring and comparable measurement is available to say how much. We should have such a measurement.

Look at the main elements of Table 1. One of the large items is veteran education benefits. This item will diminish sharply by 1980. Perhaps states will be able to continue their rapid expansion of scholarship and grant programs, but given the growing financial stringency in several of the major industrial states, rapid total expansion of state scholarship and grant programs may not continue long. What the proper balance of federal and state support should be is not yet clear, nor is the degree of total need adequately defined. The question is important. The social and financial stakes are high.

Table 1. Selected Expenditures for College Student Aid from Federal Programs and State Need-Based Scholarship and Grant Programs, 1970 and 1975
(Numbers in millions)

Item	*1970 Expenditure*	*1975 Expenditure*	*Increase*
Federal:			
Post-Korean War educational benefits to veterans	$ 524	$2,620	+$2,096
Other federal student assistance (except loans)	1,102	3,477	+ 2,375
State:			
Need-based Scholarships and Grants	200	500	300
Totals:	$1,826	$6,597	+$4,771
Total percentage increase			+ 261%
Total average annual increase			+ 22%

Source: Figures for veteran benefits are from "Veterans Benefits Under Current Educational Programs, June 1975," Department of Veterans Benefits, Veterans Administration, Washington, D.C., 1975 (Report No. DVB 1B 20-75-9). Estimates in this table were calculated assuming that the average level of benefits for veterans attending college is the same as for those enrolled in other postsecondary and vocational programs. Benefits for wives and children of veterans were not included in these estimates. Data for "Other federal student assistance" is from U.S. Bureau of the Census, *Statistical Abstract of the United States, 1975*, 96th Edition, U.S. Government Printing Office, Washington, D.C., 1975, p. 166.

State data is from Joseph D. Boyd, "National Association of State Scholarship Programs, 7th Annual Survey, 1975-76 Academic Year," Illinois State Scholarship Commission, Deerfield, Illinois, 1975, unpublished paper, p. 2.

The final conclusion from the early tables appears thus far to have been wrong. No clear evidence suggests that a sharp stratification of colleges, student bodies, and programs has occurred. Why not? One reason is that federal and state funds for student aid increased at a much more rapid rate than anticipated. In spite of inflation, both private and public colleges could continue to seek student diversity and to enroll low- and middle-income students, without paying as large a financial penalty as would otherwise have been necessary. Furthermore, the late 1960s and early 1970s may have been an unusual period when academic competitiveness was unexpectedly out of fashion. Under these circumstances it is easier for individual college admission officers to choose diversity over homogeneity, if they wish to do so.

Within the 1968 tables, the most serious error of projection was the estimate that family incomes would increase about 3¾ percent per year. The actual increase in median family incomes was approximately 5¾ percent per year, mainly due to unexpectedly high rates of inflation. Taken by itself, that error should have meant that colleges and the student markets they draw from now are in much more prosperous condition than was projected in the mid-1960s. Unfortunately, the same high rates of inflation also affected college costs and college charges to students. Average tuition rates increased in both public and private colleges at about the same rate as nominal family incomes increased, canceling out what otherwise might have been an important new source of financial advantage. However, hardly any college covers its full costs from tuition income. Since many nontuition income sources did not keep pace with the new inflation, the majority of U.S. colleges reached the mid-1970s in a more stringent and vulnerable financial condition than they experienced ten years before. They also had become much more dependent upon the future stability and predictability of state and federal financial aid for students.[5]

The Traditional Market for College Education in the Next Decade: Recent High School Graduates

Table 2 provides a rough calculation, taken from the new series of estimates in Appendix B, as to how the 1976 crop of 3,175,000 high school graduates in the United States should be classified jointly by

5. See Earl F. Cheit, *The New Depression in Higher Education*. New York: McGraw-Hill Book Company, 1971.

measured verbal aptitude and by their family income.[6] At each designated level of family income, in parenthesis, is a College Scholarship Service (CSS) estimate of the amount of money a "normal" three-child, two-parent family at this income level might be expected to contribute toward college expenses from family income and assets, under 1975-76 CSS assessment methods. From Table 2 we can estimate, for example, that approximately 287,000 men and women who graduated from high school in 1976 are able to score 450 or above on the verbal section of the Scholastic Aptitude Test (SAT) *and also* come from families earning $25,500 or more per year. This income level represents the lower dividing line for the top fifth of U.S. families with 17-year-old children. The income classifications at the left margin of the table also define the quintiles of U.S. family incomes for families containing 17-year-olds. By CSS estimating procedures, the 287,000 high school graduates in the example above come from families that might be expected to make parental contributions of $2,870 or more per year toward college expenses.

Before considering Table 2 in any detail, its important limitations should be noted. First, the individual cell estimates cannot be precise. They are based on a broad sample survey of 1972 high school seniors, the National Longitudinal Study (NLS), sponsored by National Center for Educational Statistics. Sampling errors and errors of assumption in the projection work may mean that the individual cell estimates in Table 2 are incorrect by as much as 10 or 15 percent, and that the very smallest cell estimates in the Appendix B tables may be incorrect by as much as 50 percent.[7] This renders them questionable for precise work, although not for this discussion or for many kinds of practical estimating work.

Furthermore, although family income is the best available nationwide index of ability to pay for college education, and although SAT-verbal scores are probably the best available nationwide group description of aptitude for satisfactory college work, one should not draw the conclusion that *individual* ability to pay or *individual* likelihood of satisfactory academic performance can be predicted sensibly by a two-variable table of this kind. It cannot be done and should not be attempted.

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6. Table 2 summarizes the same data as presented in Appendix B, Table B-5 (1976).

7. See Appendix D for detailed notes on the design of Table 2 and the tables in Appendixes B and C.

Table 2. Estimated Joint Distribution of All U.S. High School Graduates, 1976: Measured Verbal Aptitude and Family Income

Family income (Estimated parental contribution to college costs)	SAT-*verbal score*			
	200-299	*300-449*	*450-800*	*Totals*
Less than $8,680 (Less than $120)	292,000	271,000	71,000	634,000
$8,680 to $14,100 ($120 to $590)	223,000	296,000	116,000	635,000
$14,100 to $19,100 ($590 to $1,460)	178,000	302,000	154,000	634,000
$19,100 to $25,500 ($1,460 to $2,870)	139,000	297,000	198,000	634,000
$25,500 and over ($2,870 and over)	88,000	263,000	287,000	638,000
Totals	920,000	1,429,000	826,000	3,175,000

Source: Table 2 is derived from Table B-5 in Appendix B and combines the small-cell estimates there into larger aggregates for summary illustration. Estimates of possible parental contribution are from a CSS random-sample survey of 10,000 applicants for financial aid in the 1974-75 processing year, but then applying 1975-76 CSS calculation procedures and methodology.

What else does Table 2 show? First, in the high-score column (SAT-verbal scores of 450-800), the number of students rises as income levels rise, up through each quintile of family income. In the lowest-score column, the reverse is true. The conclusion is not new: measured verbal aptitude and family income are correlated.

Second, colleges that find difficulty enrolling enough recent high school graduates who both require little or no financial aid and who demonstrate high verbal aptitude, can see more clearly from the table where their difficulty lies. The group of 287,000 high school graduates in the above example, scoring 450 or better on the SAT-verbal test and coming from families with $25,500 income or more, is only 9 percent of all high school graduates. More colleges are trying hard to enroll more students from this segment of the population. The pool is small. Recruitment competition for these students, which has been severe for some time, is growing more so.

Third, admission officers in colleges that face the kind of difficulty noted above often point out that a larger student financial aid budget would help them to meet future desired enrollment targets,

assuming unchanging faculty expectations as to the verbal aptitude of their entering classes. The argument for more money is usually reasonable, but not as compelling as it may often seem at first glance. Why? Because at least at the higher aptitude levels shown in Table 2, there are more than twice as many high school graduates in the top two quintiles of family income as in the bottom two quintiles. Turning to Table B-5 in Appendix B and looking at the 650-800 SAT-verbal score column at the right, that ratio in the highest-score range displayed can be calculated quickly as higher than eight to one.

With these broad patterns in mind, we also can subdivide the estimates in Table 2 and take a closer look at the market. In Table 3 each cell is divided into two parts, those high school graduates who go on to postsecondary education within 18 months and those who do not.[8]

Look at the lower right-hand cell of Table 3—graduates scoring 450 or higher and coming from families with incomes of $25,500 or higher. In this cell, 239,000 are estimated to be "in college"—five-sixths of the total in the cell—and 48,000 are "not in college." To the extent an individual college wishes to enroll more of this market segment and succeeds, it will do so largely by reducing the enrollment of such students at other colleges.

If the same college has the funds and wishes to enroll able but needy students who would not otherwise attend college, the pool of such students appears surprisingly small. For example, Table 3 shows that about 309,000 students, or at least 24 percent of all 1976 high school graduates classified "not in college," score 300 or higher on the verbal sections of the SAT and also come from families in the bottom two income quintiles.[9] However, lack of funds is only one of several possible reasons why high school graduates do not attend college immediately or ever. The above estimate of "not-in-college" high school graduates probably should be cut at least in half if attempting to estimate the maximum size of potential effective demand in this portion of Table 3. Therefore, we might estimate that such a group will comprise not more than about 10 percent of all

8. This subdivision is derived by using NLS survey data for 1972 high school graduates who responded to an October 1973 follow-up questionnaire. Again, the smaller the cell divisions in sampling and projection work of this kind, the greater the risk of error in estimating individual cell values.

9. From Table 3, upper right-hand segment: 129,000 + 21,000 + 129,000 + 30,000 = 309,000.

Table 3. Estimated Joint Distribution of All U.S. High School Graduates, 1976: Measured Verbal Aptitude and Family Income

Family income (Estimated parental contribution to college costs)	SAT-*verbal score*			
	200-299	*300-449*	*450-800*	*Totals*
Less than $8,680	98,000	142,000	50,000	290,000
(Less than $120)	(194,000)	(129,000)	(21,000)	(344,000)
$8,680 to $14,100	85,000	167,000	86,000	338,000
($120 to $590)	(138,000)	(129,000)	(30,000)	(297,000)
$14,100 to $19,100	75,000	182,000	117,000	374,000
($590 to $1,460)	(103,000)	(120,000)	(37,000)	(260,000)
$19,100 to $25,500	64,000	190,000	156,000	410,000
($1,460 to $2,810)	(75,000)	(107,000)	(42,000)	(224,000)
$25,500 and over	46,000	189,000	239,000	474,000
($2,870 and over)	(42,000)	(74,000)	(48,000)	(164,000)
Totals	368,000	870,000	648,000	1,886,000
	(552,000)	(559,000)	(178,000)	(1,289,000)

Note: Each cell in Table 3 contains the same estimated number of high school graduates as the corresponding cell in Table 2. The difference in the two tables is that Table 3 subdivides each cell into an estimated number attending college, and (in parenthesis) an estimated number not in college. The method for subdividing the cells uses relationships established in the 1972 NLS survey of U.S. high school graduates and a follow-up study of the same sample in the fall of 1973. This study was sponsored by the National Center for Educational Statistics (NCES). The controlling total number of students classified "in college" is the estimate projected by NCES in 1973 for the year 1976: total first-time degree credit enrollees in two-year and four-year colleges. Those high school graduates who indicated in the fall 1973 follow-up NLS survey that they had pursued post-high school education were classified as "in college" and distributed among the cells according to measured verbal aptitude and family income, in the same way these distributions were made for the series of joint distribution tables in the Appendix B. Then, in each corresponding cell, the number classified as "in college" for Table 3 was subtracted from the total cell value in Table 2 to yield the "not in college" cell estimates, in parenthesis, for Table 3. One important and untested assumption in this method is that high school graduates who go on to post-high school education within 18 months of graduation represent a similar population (as to aptitude and family income) as all degree-credit first-time enrollees in two-year and four-year colleges. Another untested assumption is that the relationships shown by the NLS survey in 1972 and 1973 are stable enough over time so that they may legitimately be used for 1976.

those not in college, and thus not more than 4 percent of the total crop of 1976 high school graduates.

High school graduates included in the left-hand column of Table 3, particularly those in the top two cells (the lowest two quintiles of family income) are the least likely today to be served by U.S. colleges. The financial need of these students often is accompanied by insufficiently developed reading and writing skills to survive the required academic pace of most colleges. The difficulties to be faced by such students in college are even greater if they also are required to spend relatively long hours in paid jobs to meet their bills. Separate estimates from the 1972 NLS survey data suggest that about two-fifths of the high school graduates in those two top left-hand cells of Table 3 are black students. The predominantly black colleges in the Southeast have had notable success in meeting the needs of some of these students. For most other U.S. colleges, this portion of the market still represents a largely unmet challenge and an important remaining test of how far U.S. colleges generally will progress toward the goal of universal access to postsecondary education, however that goal may be defined.

More Than Survival: Prospects for Higher Education in a Period of Uncertainty, issued by the Carnegie Foundation for the Advancement of Teaching, provides the most helpful published discussion available concerning the new enrollment pressures for colleges. This report is so clear and thorough that it should be read separately rather than summarized here. The Carnegie report applies the same kind of reasoning as underlies this study, but to a wider variety of important yet less-measurable factors than the ones mainly dealt with here concerning high school graduates. Table 4 is an example, taken from the Carnegie report, that estimates the effect of four selected external trends on enrollment in six broad groups of colleges and universities.[10] "Average" in Table 4 means average in relation to the Carnegie-projected total college and university enrollment trend, which is summarized in Table 5.[11]

The Carnegie projections of head-count enrollment in colleges and universities show a no-growth total trend, rather than the cyclical decline-and-recovery pattern that would occur if college enrollment was assumed to follow the trend established solely by the projected number of high school graduates. Key assumptions

10. Carnegie Foundation for the Advancement of Teaching, *op. cit.*, Table 12, p. 69.
11. *Ibid*, Table 5, p. 45.

Table 4. Estimated Effects of Four Selected External Factors on the Share of Enrollments Held by Six Types of Institutions

Institution type	*Fewer 18- to 21-year-olds*	*Declining market for teachers*	*More part-time* students of all ages*	*Rising state support for private higher education*	*Total consequences for enrollment shares in 1985 compared to 1973*
Universities	Average	Worse than average	Worse than average	Average	Smaller
Comprehensive colleges and universities	Average	Worse than average	Average	Worse than average	Smaller
Highly selective liberal arts colleges	Worse than average	Average	Worse than average	Better than average	Same
Less highly selective liberal arts colleges	Worse than average	Worse than average	Worse than average	Better than average	Smaller
Public community colleges	Better than average	Better than average	Better than average	Worse than average	Larger
Private two-year colleges	Worse than average	Average	Worse than average	Better than average	Smaller

* Includes both degree-credit and non-degree-credit enrollment.

Source: Carnegie Foundation for the Advancement of Teaching, *More Than Survival: Prospects for Higher Education in a Period of Uncertainty*. San Francisco: Jossey-Bass, Inc., Publishers, 1975.

Table 5. Projected Total Head-count Enrollment in U.S. Colleges and Universities (1960-2000)
(Numbers in thousands)

Year	*Enrollment*	*Year*	*Enrollment*
1960	3,789	1985	12,137
1970	8,581	1990	11,818
1973	9,664	1995	12,179
1980	11,513	2000	12,794

Source: Carnegie Foundation for the Advancement of Teaching, *More Than Survival: Prospects of Higher Education in a Period of Uncertainty.* San Francisco: Jossey-Bass, Inc., Publishers, 1975.

in the Carnegie reasoning were that adult enrollment and non-degree-credit enrollment would continue to expand and that present college dropouts might be encouraged to return to college in larger numbers. The Carnegie report also assumes that federal and state financial support to students would persist, and that funds now going to veterans education will continue to be spent but for other students. The Carnegie report makes clear that these assumptions require a higher degree of adaptability within colleges, and greater stability in state and federal government policy than one might comfortably expect on the basis of our past experience.

The key message, either from the Carnegie report or from the series of tables shown in Appendix B, is that the traditional market of high school graduates begins to shrink about 1978 and does not begin to recover until the 1990s. This shrinkage, in turn, will set up a new set of pressures and stresses to which U.S. colleges must respond somehow. How each one will respond will depend partly on what the college's purpose is, how it is governed and financially supported, what its competitive position is compared with similar colleges seeking the same students, and perhaps whether its location is in a region of growing or decreasing population. Most of these elements have been viewed by colleges as important fixed constants in their own planning. Under the new pressures, many of these constants may instead become variables. Therefore, finally, a college's ability to adapt intelligently, quickly, and surefootedly probably will determine its quality and even its survival during the next 15 years to a far greater degree than was true during the past 30 years.

Broadening the Market

Special opportunities may arise for colleges during the next 10 or 15 years, along with new and particularly difficult problems. These opportunities and problems arise from the new condition of the market for college students. They clearly require improved monitoring and analysis. In some instances they also demand that new ways be found for colleges and government bodies to administer important parts of their business.

One prior question that might be raised is whether our colleges have not been overbuilt compared to the need for them. The economic studies that impute rates of return on investment in college education suggest this possible conclusion.[12] Therefore, would not at least a temporary contraction of the collegiate system represent sensible public policy?

If one envisions a society in which administrative structure and political issues do not grow simpler, in which technical skills must remain high for a growing portion of the work force, and in which more frequently the jobs held by people at age 25 are not the same as the ones they hold at age 35 or 45, then colleges still have broad usefulness. The aggregate need for individuals to learn better how to learn has not yet been fully met by these institutions. If one takes seriously the need to open jobs of all kinds, particularly managerial and professional ones, to a more representative balance of race and sex, then improved access to the basic skills also must remain an important goal for some years to come. These needs appear constant whether or not wage differentials are growing or shrinking between college graduates and high school graduates. If one holds these views, then one asks how can colleges adapt under the new pressures to best fulfill their old and new tasks?

At present, enrollment is the financial base of private colleges and enrollment-determined formula defines the financial base of many public colleges. Most colleges, therefore, perceive a dependence either upon enrollment expansion, or upon avoiding loss of enrollment. Whether colleges try to expand or to avoid shrinkage, all but the few in the most favorable circumstances must be concerned with how their own effective applicant pools might be broadened. For any single college, an obvious potential source of

12. See Richard B. Freeman, "Overinvestment in College Training?," *Journal of Human Resources*, Summer 1975, Vol. X, No. 3, pp. 287-311.

additional students is high school graduates who expect to attend college somewhere, but perhaps not that particular one. Competition between colleges for such students has existed for some time, often taking healthy forms that improved the flow of information to students and increased the choices available to them. But as the annual crop of high school graduates begins to shrink, the recruitment competition for some of these high school graduates will probably escalate, and not necessarily in healthy ways.

However, is it so bad if individual colleges do shrink? Some have done it without apparent ill effect. Perhaps more can do so. But the process of shrinkage ideally requires a kind of internal flexibility and interchangeability of parts that many colleges do not have and may find unduly difficult to develop. If student enrollment declines, initial budget arithmetic suggests that the number of teachers should decline proportionally. Faculty tenure provisions and collective bargaining agreements further urge that those reductions should be made first among nontenured faculty or by not replacing retirees with new young faculty. Since the reductions over a number of years tend to occur among the youngest and lowest-paid faculty, the budget question is not fully resolved merely by maintaining the old student/faculty ratio. Faculty salary expense per full-time student will rise, unless the student/faculty ratio is further increased.

One portion of the budget unprotected by prior contract or by claimants on the scene is the college's scholarship allocation for prospective freshmen. Recruitment needs may partially protect it, but not necessarily against the temptation to try to recruit more middle-income and upper-income students instead of extremely needy ones. Building maintenance budgets can be reduced, but in the long run the grounds and buildings must suffer. The hiring of faculty for interdisciplinary studies and experimental programs tends to be an early casualty in the retrenchment process. Such decisions are often made to try to preserve the integrity of core department programs. As budgets shrink, administrative judgment is more sharply questioned. Almost by definition, the process ages the faculty and administration, gives both cause for mutual suspicion, perhaps reduces the diversity of students enrolled, and inhibits a college's capacity to adapt just at the time it is needed most. Recent examples suggest that a measure of flexibility may return if a college finally reaches the edge of bankruptcy. But it is hard to imagine a large number of colleges functioning successfully

that way for long. The tendencies just described are not iron laws, nor do they describe accurately the experience at every college that has lost enrollment. But the sequence of general pressures and of actual events at many such colleges recently is correct, without even beginning to describe the added strains imposed by inflation.

Furthermore, it is easy to speculate that two kinds of developments may occur across the whole market if the smaller number of high school graduates each year begins to cause noticeable enrollment decline in public colleges and universities. These institutions may be expected to step up student recruitment efforts in unprecedented ways, although perhaps stopping short of the obviously wasteful or inappropriate. A period of enrollment decline also may lead officers and governing boards of public colleges to become particularly unreceptive toward the recurring suggestion that the effective difference in tuition rates between public and private institutions should be reduced. For this reason, in many states, the cooperation between public and private colleges that earlier had led to improved funding of need-based state scholarship and grant programs may encounter new strains.

Neither individual colleges nor our whole system of colleges were designed to go through prolonged shrinkage. Individual colleges need to examine the unpleasant prospect, to see if they cannot find ways to achieve greater budget and program adaptability before the edge of bankruptcy is approached. Budgeting practice for public higher education also may need examination, to determine at minimum whether the present immediate-acting, enrollment-based appropriation formulas really do produce as adequate a result during an extended retrenchment period as they were thought to produce during expansion. To a greater extent than before, the key individual actors must not look only to health and adaptability of their own jurisdictions. They must also be concerned with the emerging problems throughout the system, since these are increasingly likely to affect them directly.

Colleges that seek to enroll more already-college-bound high school graduates usually need to know more than they now do about the following:

1. Who inquires about enrollment and why?
2. Why do applicants apply for admission?
3. Among those admitted, what reasoning separates those who do enroll from those who do not?
4. Who drops out and for what consistent reasons, if any?

5. Among those who graduate, where do they find work? What relationship does this work decision have to what was learned in college?

Answers to these questions will not tell a college what it should do differently, but they could yield an improved and more regular indication of growing strengths and weaknesses in relation to its known clientele. But if colleges finally manage only to compete aggressively with each other for a larger share of a shrinking pool, the total system will be in disarray 15 years from now.

A different source of students for many colleges can be those recent high school graduates who are sufficiently able and interested to profit from postsecondary work but who, for financial and other reasons, ordinarily would *not* undertake it. Community colleges and others have successfully attracted such students. Federal and state student financial aid programs have helped change the plans of many others. Table 3 shows that the number of first-time entrants to two- and four-year colleges in 1976 is about 60 percent as large as the number of high school graduates that year.

If federal and state policy were to underwrite a stronger attempt to move toward universal access to postsecondary education, it might be reasonable to expect this proportion to rise to 70 percent within five to seven years, a shift of about 200,000 high school graduates from "not in college" to college-enrolled from each annual crop. It can be estimated from the same table that the increased availability of student aid funds alone might attract about 120,000 of these students from the SAT-verbal score bracket of about 300 to 450, for whom substantial academic program changes might not be required from the colleges they attend. The estimated remaining 80,000, at SAT-verbal score levels between 200 and 300, probably would need both money and the availability of new programs that included extra skills training in reading, writing, and perhaps mathematics. If today the number of high school graduates going on soon to college was projected for 1984, *without* such a change in public funding policy, that number might be projected to move from about 1,886,000 (1976) down to 1,612,000 (1984), a loss of 274,000 college entrants from this source, or a loss of 15 percent. *With* such a change in public policy, however, the net loss of college entrants from this source might be only about 74,000 students, or 4 percent, between 1976 and 1984. One may estimate roughly that the added state and federal cost in need-based student scholarships and grants to accomplish this result would be about $2 billion a year at

1976 prices.[13]

Such a suggestion is not new. Similar ones were made and adopted piecemeal during the 1960s and early 1970s, when the public cost of doing so involved both current costs and the costs of system expansion. During the coming decades, significant further progress toward universal access to postsecondary education could be made without also bearing the large extra capital costs of system expansion. The opportunity is great. Unfortunately the legitimate competition it faces from other public spending desires is also unusually high.

With the stakes and the dollar amounts potentially so large, it is particularly unfortunate that a more regular and thorough monitoring and analysis of similar past expenditure programs has not taken place. The 1972 and 1973 NLS surveys provided a worthwhile beginning. But after a five-year, four-billion-dollar increase in the level of state and federal expenditure for student aid, some reliable evaluation of what happened should be available to help guide our next decisions. Relatively few states have collected sufficient data to produce in detail the kind of estimate summarized in Table 3, and the federal government has done so only once. None, to my knowledge, does so on a recurring and comparable basis.

It would be tempting to say that there was no excuse for this to occur. There may not be sufficient excuse, but there is some. State legislatures are not likely to go looking for unmet student financial need at a time when the students already enrolled are making it through somehow, and when the notion of increasing enrollment, if that were to be involved, sounds unattractively expensive. The economists' return-on-investment argument seemed welcome when it first was used to encourage the great expenditures of the 1960s in higher education. Now that the calculated rates of return for col-

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13. See Humphrey Doermann, "Lack of Money: A Barrier to Higher Education," in *Barriers to Higher Education*, New York: College Entrance Examination Board, 1971, pp. 139-42. The estimates here would multiply 200,000 high school graduates per year times 3 (to support four classes in college less allowance for dropout) times an estimate of $1,700 average scholarship need per student times a final factor of 2 equals $2.04 billion dollars. The "final factor" acknowledges the impossibility of targeting need-based scholarships solely to those who would not have attended college without one. That targeting process would require a prior and reliable mind-reading system. Instead, attempts to make college attendance possible for more students usually requires an investment also in more fully meeting the demonstrated need of those already enrolled. Among these students, parental overcontribution is thereby reduced, as is some of the need for time-consuming student employment jobs.

lege education are declining, it is difficult to go back and point out that the method itself, while interesting, has always had its arbitrary features and cannot be a reliable general investment guide for all time. Finally, if it had been attempted, any systematic and recurring attempt to monitor enrollment of minority-race students, classified by measures of income and verbal aptitude, probably would have gotten tangled in the debate about racial bias in tests and about the degree to which this kind of measured aptitude is inherited. The monitoring for the most part did not take place. The price of this seems high. It is more difficult now than it might have been for advocates and skeptics to reach agreement as to what progress was achieved toward defining universal access to postsecondary education. The extent of the remaining need is thus equally debatable. Whatever the details of appropriate inclusion and exclusion of data, it seems clear that colleges, state governments, and the federal government should locate more clearly their common interests in monitoring and understanding the major changes within the market for college education.

Four-year colleges also may attract additional students by recruiting transfer graduates from junior and community colleges, and in some cases from postsecondary vocational schools. The net gain to total U.S. college enrollments probably will not be large, since the proportion of two-year college graduates seeking further academic work is small. But the impact of such recruitment for selected colleges and groups of colleges can be substantial. State scholarship and grant programs have increasingly defined such students as eligible for state funds. The Ford Foundation for several years has operated successfully a program to encourage further college attendance by minority-race graduates of two-year colleges. The Bush Foundation, St. Paul, Minnesota, and The Permanent Charity Fund, Boston, Massachusetts, both operate regional programs that provide need-based scholarships for graduates of two-year colleges to attend four-year private colleges in their regions.[14]

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14. For a description of the Bush program, *see* Humphrey Doermann, "Bush Opportunity Grants," *Foundation News*, Vol. 14, No. 6, September 1973, p. 3. For further discussion of transfer students, see Warren W. Willingham, "Transfer Standards and the Public Interest," an unpublished paper prepared for the Airlie House Conference on College Transfer, December 2-4, 1973, Princeton, N.J.: Educational Testing Service. In this paper Willingham notes that available data permit only rough estimates of the various flows of transfer students. He estimates that somewhere be-

In Minnesota, the number of students transferring from two-year colleges to four-year colleges increased from 200 in 1970 to an estimated 500 in 1975. This increase was partly due to the Bush program, and partly to a state decision during the period that Minnesota transfer students could receive state grants. Also, this flow of students probably was expanding by itself. Perhaps most important, several private colleges decided to recruit more actively to increase the flow. For Hamline University in St. Paul and Augsburg College in Minneapolis, a sharp increase in transfer admissions more than offset declining freshman admissions. This produced greater variety of age and background in their student bodies, without detriment to academic performance.

Finally, the largest and at first glance the most obvious untapped market for college education is the adult market: individuals that might be served by full-time and part-time programs, whether or not these lead to the conventional degrees. The population base is large and expanding. An increasing desire for occupational retraining and for many kinds of nonvocational programs seems highly probable. However, whether these potential advantages can be converted into worthwhile new effective demand that at the same time will improve the health of colleges is not clear. Before this can occur, difficult issues of pricing, program design, and public policy must be resolved.

Ordinarily, pricing might not seem to be a fundamental issue compared with the others. However, continuing education and adult nondegree programs usually have sold their services in single-course units, operating at the budgetary margin of the college or university that sponsors them. Courses are offered if they can pay their way. The faculty usually receives a relatively small moonlighting wage. The arrangement provides a low-cost set of offerings at bargain prices. Courses that do not pay their way on this basis tend not to be given: laboratory science courses, small humanities seminars conducted by full professors, and so on.

Full-time degree-granting programs, by contrast, are priced as a total mixture of academic and support services. The relatively expensive total mixture must cover total costs either from tuition

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tween 200,000 and 260,000 students a year in the early 1970s transferred from two-year colleges and vocational schools to four-year colleges. Fragmentary evidence suggests strongly that an increased flow of this kind is both feasible and merits encouragement. How much increase might occur with added stimulation is not clear.

alone or from tuition plus public subsidy. Private colleges may wish to consider making adult education a major activity, as a way to help improve financial health. But probably they will find that the only way to accomplish this easily is by encouraging new adult students to fit into the regular schedule, part or full time, and at the relatively expensive full-time rates. For the rest, unless separate new adult courses and programs are so worthwhile or unique that they can command unusually high prices, they will operate in a cut-price market that permits little contribution towards the colleges' fixed costs. This, in turn, will make little improvement in financial health.

Some state universities, seeing the possibility of future enrollment decline and wishing to insulate their budgets against it, are asking (if they have not already done so) that continuing education students be counted in the basic state enrollment formula that determines the university's state legislative appropriation. Under such circumstances, it does not seem likely that public universities will be anxious to raise prices for adult education and thus risk losing enrollment until they absolutely must. Price competition seems likely to continue or to increase. Under present conditions, therefore, the ability of private colleges to enter the adult market appears to be limited to relatively minor recruitment into regular degree programs, and to special adult programs where the instruction is low cost, high worth, and without serious public competition.

Note, however, that "present conditions" include a general reluctance by most states and the federal government to finance students who study less than half time and working-age adult students in nondegree programs. That reluctance perhaps need not be permanent, if it could be demonstrated that more heavily subsidized adult education would bring important and widespread benefits that cannot be achieved without such subsidy. Unfortunately not enough is known about the variety of interests, needs, academic ability, and financial capacity in the adult market. This, in turn, also has inhibited the design of coherent machinery to administer such a subsidy.[15]

Given these assumptions, we may still expect some expansion of

15. For fuller discussion see William D. Van Dusen, "Financial Aid for Part-Time Students," an unpublished paper prepared for The National Advisory Council on Extension and Continuing Education, New York: College Entrance Examination Board, September 1975.

the adult market for college education. But as long as most adult courses are low priced and not otherwise subsidized, these programs appear unlikely by themselves to insulate colleges and universities against the general enrollment-based financial pressures of the next decade or two.

Four groups from which colleges may seek to broaden their market have been discussed here: recent high school graduates who have planned on college but have not decided where; high school graduates who might be encouraged to attend college; transfer students from two-year colleges; and adult and part-time students of various kinds. Although any individual college may resist successfully the coming enrollment pressures by luck and good management in approaching one or more of these market segments, the large network of U.S. colleges and universities as a whole probably cannot increase or even stabilize enrollment at a healthy level within the financial resources now available. Significantly increased state and federal appropriations toward equal access to postsecondary education appears to be an important step to encourage, despite strong and legitimate competing demands for public funds. Careful analysis of new designs for adult education also is important.

In a world of scarce funds, any foolish expenditure of effort and money will appear particularly burdensome. As colleges, universities, and government agencies move into such a world, reliable information becomes increasingly significant. Analysis of markets, analysis of changing enrollment patterns, and attempts to monitor and understand the impact of federal and state financial aid programs always seemed worthwhile, but in the press of past events often were not adequately executed.

Finally, by speculating upon what should be done differently in the years just ahead, we should not lose sight of the fragile but major achievements of the past, which may come apart unless special efforts are made to preserve them. Two such achievements deserve particular mention. First is the notion that the best way to stretch scarce scholarship, grant, and loan dollars is to allocate them where they are most needed. Common standards of individual-student need analysis are worth the administrative effort because adherence to those standards helps increase the number of needy students who are given a chance to continue their education. The other route, easily taken, is for colleges to bid for students, whether or not they need the money.

The second achievement in many states is the relatively recent agreement by both public and private colleges that state appropriations for grants and scholarships, based on demonstrated need and usable at any accredited college, represents an excellent investment in educational opportunity. The coming enrollment pressures may threaten this kind of agreement if it is not reaffirmed and strengthened, but virtually everyone will be the loser if it seriously erodes or collapses.

The opportunities ahead appear significant. The penalty for failing to take advantage of them appears greater than has been true for a long time.

Appendix A: How to Use the Tables in Appendixes B and C

The purpose of Appendix A is to help practitioners use the tables in Appendix B (the joint distribution tables) and Appendix C (the cumulative distribution tables) to help answer common questions that may arise in their work. Sample questions follow, along with descriptions of processes one can follow in seeking the answers in the tables.

What information do the joint distribution tables display in Appendix B? Appendix B shows how all U.S. high school graduates in each of seven selected years may be jointly described by measured verbal aptitude and by the income of their families.

Take an example for 1976 from Table B-5 in Appendix B. This table shows the number of high school graduates able to score between 400 and 449 on the verbal sections of the Scholastic Aptitude Test (SAT), and who also come from families between the 40th and 60th percentile levels of U.S. family incomes (of families containing a 17-year-old). This estimated number is 93,000. If all U.S. high school seniors were to take the SAT, the College Entrance Examination Board estimates that 60 percent would score below 400 on the verbal section and 26 percent (100 minus 74) would score above 449. These percentile benchmarks are shown at the top of the tables, just below the verbal score designations.

The lowest-income families represented among these 93,000 graduates are estimated to come from families with an annual income of $14,100. The College Scholarship Service (CSS) estimates that a three-child, two-parent family in normal circumstances (including a statistical average of 1.45 children in college), would be expected to be able to contribute $590 toward a son's or daughter's college expenses at this family-income level. The CSS estimate is made using its 1975-76 processing standards, taking into consideration normal assessments against family income and assets. The most prosperous families represented among these 93,000 high school graduates receive an annual income of $19,100, and on the average would be expected to be able to contribute $1,460 toward college expenses of a son or daughter. The family income and parental contribution benchmarks are shown at the left-hand edge of each table.

The estimated total of all high school graduates able to score between 400 and 449 on the SAT-verbal sections is 445,000. All the cells in the table add up to 3,175,000, the total estimated number of U.S. high school graduates in 1976.

What information do the cumulative distribution tables display in Appendix C? Appendix C is built from the data in Appendix B and merely recasts the same information in a different format. Each cell shows an estimate of the number of high school graduates who fit the marginal labels plus all those who have higher measured verbal aptitude and family incomes. Take the above example for 1976. Turn to Table C-5 in Appendix C. What is the estimated number of U.S. high school graduates able to score 400 or better on the SAT-verbal sections *and who also* come from families above the 40th percentile income level (families receiving $14,100 a year and able to contribute $590 toward college expenses)?

Enter the table at the 400 SAT-verbal score column and the 40th percentile family-income row. The table estimates that 935,000 high school graduates are able to score 400 or better and come from families with incomes at the 40th percentile level or higher.

A college, seeking an abler student body, wishes to consider raising the effective minimum verbal aptitude of its entering freshmen during the next two years. How much smaller is the defined national candidate pool if 450 is set as the effective minimum SAT-*verbal score target for 1978, compared with 400 in 1976?*

Here, the phrase "effective minimum" is used in the original question. This is because the individual minimum test score in any entering class probably will vary considerably from year to year, whereas the 10th percentile of entering freshman scores (90 percent of freshmen score this well or better) may be a more stable and a more practical definition of the minimum score level of interest.

Table C-5 (1976) shows 1,271,000 high school graduates able to score 400 or better on the SAT-verbal sections (all income levels); Table C-6 (1978) shows 829,000 graduates able to score 450 or better. If the college's suggested policy were attempted, and if all other factors were equal, the potential applicant pool for this college would have shrunk under the new definition by 442,000 (1,371,000 minus 829,000) high school graduates or by 35 percent.

In the same example, what if we wished only to consider shrinkage in the segment of the market at the 60th percentile level of family incomes or higher? Table C-5 (1976) shows 688,000 high school graduates at 400 or higher score level and 60th percentile family income or higher; Table C-6 (1978) shows 486,000 graduates at 450 or higher score level and 60th percentile family income or higher. The shrinkage calculation then becomes 688,000 minus 486,000 or 202,000, a decrease of 29 percent. Note that family income at the

60th percentile level increased $2,800 in two years or 7 percent per year in these projections, and that CSS estimates the ability of these families to contribute to college expenses increased from $1,460 to $1,720 in two years or a net increase of $580.

To the extent CSS correctly estimates family ability to contribute at increasingly high levels of nominal family income, the implication here would be that the total individual student expense budget at this college could increase $260 during the two-year period and still have only a neutral effect on recruitment from students at the 60th percentile level of family income. However, this implies that although these families' incomes rise 7 percent, their ability to contribute rises 8.5 percent per year. (If ability to contribute were to rise only 7 percent per year, that dollar increase would be $215 over two years.) Depending on the nature of the problem, some extra caution probably is appropriate when projecting family ability to contribute, at high family income levels, particularly when attempting to work several years ahead or back from 1976. Because of this uncertainty, the 1964 and 1984 tables do not provide estimates for expected parental contribution.

Assume that in a particular private college, a family income of $25,500—and implied ability to contribute to college costs of $3,150—represents in 1976 approximately the border between families who require further financial aid and those who do not. Assume also that the college intends that the effective minimum SAT-*verbal score of the entering freshman class equal or exceed 450.*

First, what is the national pool of high school graduates who would not require financial aid, as defined by these conditions? Second, how much smaller would that pool have been if tuition of 1976 had been set $300 higher?

First, in Table C-5, Appendix C, enter the table for SAT-verbal score 450 and family income $25,500. The pool thus defined is 287,000 high school graduates.

Second, by subtraction, of the 287,000 high school graduates described this way, 163,000 fall above the next higher cutoff level for family income, and 124,000 therefore remain within the income bracket between the 80th and 90th percentile levels of family income (and all scoring 450 or higher on the SAT-verbal sections). The next question becomes, how many of that 124,000 become "excluded" by a $300 tuition increase? Here, for rough estimating purposes, linear interpolation is the easiest way to proceed. If the 124,000 graduates range in expected family contribution from $2,870 to

$5,200, what proportion of the group is cut off by a $300 slice? Five thousand two hundred dollars minus $2,870 equals $2,330. Three hundred dollars divided by $2,330 equals 13 percent. Thirteen percent of 124,000 equals 16,000 high school graduates thus subtracted. Sixteen thousand divided by the total 287,000 students originally defined represents a reduction in the effective pool of 6 percent, assuming the tuition had been $300 higher and all other elements held consistent.

How does one use the tables if the desired entry points do not happen to be the ones listed at the margins?

Again, linear interpolation seems appropriate. If desired, this process also can fill in table values for years between 1964 and 1984 which are not included in these appendixes. Linear interpolation, however, probably produces the least accurate results at the high or low extremities of measured aptitude or income.

What if we are only interested in single-sex data?

A workable rough estimate can be achieved by dividing by two any of the estimates presented here.

What if a metropolitan area, a state, or a multistate regional table would be more helpful than a national one? How would such tables be constructed?

The first element needed is the estimated number of high school graduates in the defined region. For example, the Minnesota Higher Education Coordinating Commission estimates there will be 72,000 Minnesota high school graduates in 1976. Minnesota will thus produce 72,000/3,175,000 (from Table C-5) or 2.27 percent of the 1976 U.S. high school graduates. If Minnesota students have the same SAT-verbal score distribution and family income distribution as do all U.S. high school graduates, every cell in Table B-5 and C-5 can be multiplied by 0.0227 to produce a Minnesota set of estimates. In many states for many purposes, the errors introduced by making this assumption of comparability will not be significant.

If a more precise estimate is desired, the College Entrance Examination Board Student Search Service data each year collects SAT-verbal score distributions by state, and distributions of student-reported family income estimates. This data is available on request, and could indicate the amount of adjustment for particular regions that should be made to improve the quality of the desired estimates. The American College Testing Service also produces national distributions of ACT test scores and of student-reported family income for ACT test takers each year, and provides this in-

formation to colleges using ACT services. These ACT-client colleges also receive reports of test and income distributions for the state in which they are located, if they are within one of the 37 states with highest usage of ACT. There is no published equating scale, however, to translate ACT score levels to or from a SAT scale.

What are other uses for these appendix tables? Table 3 in the text of this study illustrates additional purposes for these tables if information about measured verbal aptitude and family income of college-enrolled students is also available. On a national scale, one can then begin to estimate how many high school graduates are *not* now in college but who might productively enroll if funds were available.

If similar state tables are constructed and the same information about the college-enrolled students were made available, an estimate of how much potential but unmet demand exists in individual states can begin to be made. The costs of meeting this demand will depend in part upon the assumptions made about how expensive a college choice these students should be encouraged to consider, and upon the observed unfilled capacity within the various colleges in the state. Other significant matters that must be considered in such a study are the extent to which demonstrated unmet financial need exists among already-enrolled students, and given this information, what the appropriate balance might be between grants and loans in any proposed addition to public financial aid.

Finally, if reliable data is available in a state as to college-enrolled student's verbal aptitude and income, and as to student charges and financial aid available at those colleges, it is also possible to examine how the financial incentives to attend public and private colleges might shift for students under various possible changes in tuition and financial aid policies. This analysis would not predict accurately what would happen in the short run if any of those policies were adopted. But it would illustrate the general magnitude of money incentives facing different groups of enrolled students, and of the possible benefits and losses to each. It might also help analyze possible voter response. This kind of analysis has not been accomplished in many of the states where the proposal has been made that tuition charges be raised at state colleges and universities and that the extra income be used for need-based financial aid. Lack of analysis is by no means the only obstacle that such proposals have faced, but it nonetheless may be an important one.

Appendix B.
Joint Distribution Tables of U.S. High School Graduates: Aptitude and Family Income (1964-1984, Selected Years)

Table B-1. 1964 Joint Distribution of U.S. High School Graduates: Aptitude and Family Income

SAT-*verbal score*	*200-249*	*250-299*	*300-349*	*350-399*	*400-449*	*450-499*	*500-549*	*550-599*	*600-649*	*650-800*
SAT percentile (Cutoff level for lowest score)	0	15	29	45	60	74	84	91	96	99
Family income										
Percentile — *Amount (Est. parent contribution)*										
0- 20 — $ 0 (Not est.)	119,000	92,000	84,000	64,000	47,000	26,000	14,000	8,000	3,000	500
20- 40 — $ 3,700 (Not est.)	84,000	76,000	80,000	72,000	62,000	38,000	23,000	14,000	7,000	1,500
40- 60 — $ 6,260 (Not est.)	64,000	65,000	78,000	73,000	66,000	46,000	31,000	20,000	11,000	3,000
60- 80 — $ 8,780 (Not est.)	48,000	53,000	71,000	71,000	72,000	54,000	39,000	28,000	17,000	5,000
80- 90 — $13,700 (Not est.)	17,000	21,000	31,000	34,000	37,000	31,000	24,000	19,000	12,000	4,000
90-100 — $17,100 (Not est.)	11,000	14,000	22,000	29,000	37,000	34,000	29,000	26,000	19,000	9,000
Totals	343,000	321,000	366,000	343,000	321,000	229,000	160,000	115,000	69,000	23,000

Note: Each cell in the table estimates the number of high school graduates that are described at the margins by SAT score and income classifications. For example, the table estimates that approximately 47,000 high school graduates score between 400 and 449 on the SAT-verbal sections and come from families at the bottom 20 percent of the U.S. family incomes.

Total number of high school graduates: 2,290,000

Table B-2. 1970 Joint Distribution of U.S. High School Graduates: Aptitude and Family Income

SAT-verbal score	*200-249*	*250-299*	*300-349*	*350-399*	*400-449*	*450-499*	*500-549*	*550-599*	*600-649*	*650-800*
SAT percentile (Cutoff level for lowest score)	0	15	29	45	60	74	84	91	96	99
Family income										
Percentile — *Amount (Est. parent contribution)*										
0- 20 — $ 000 ($ 000)	151,000	116,000	107,000	82,000	59,000	33,000	18,000	9,000	4,000	1,000
20- 40 — $ 5,830 ($ 80)	107,000	96,000	102,000	91,000	77,000	48,000	29,000	18,000	9,000	2,000
40- 60 — $ 9,460 ($ 300)	81,000	82,000	98,000	92,000	85,000	59,000	39,000	26,000	14,000	3,000
60- 80 — $12,860 ($ 800)	60,000	67,000	89,000	90,000	91,000	69,000	50,000	36,000	21,000	6,000
80- 90 — $17,170 ($ 1,580)	22,000	26,000	39,000	43,000	47,000	39,000	30,000	23,000	15,000	5,000
90-100 — $24,200 ($ 3,430)	13,000	18,000	28,000	37,000	46,000	42,000	37,000	33,000	24,000	12,000
Totals	434,000	405,000	463,000	435,000	405,000	290,000	203,000	145,000	87,000	29,000

Note: Each cell in the table estimates the number of high school graduates that are described at the margins by SAT score and income classifications. For example, the table estimates that approximately 59,000 high school graduates score between 400 and 449 on the SAT-verbal sections and come from families at the bottom 20 percent of the U.S. family incomes.

Total number of high school graduates: 2,896,000

Table B-3. 1972 Joint Distribution of U.S. High School Graduates: Aptitude and Family Income

SAT-verbal score	*200-249*	*250-299*	*300-349*	*350-399*	*400-449*	*450-499*	*500-549*	*550-599*	*600-649*	*650-800*
SAT percentile (Cutoff level for lowest score)	0	15	29	45	60	74	84	91	96	99
Family income										
Percentile / *Amount (Est. parent contribution)*										
0- 20 — $ 000 ($ 000)	157,000	121,000	111,000	85,000	61,000	34,000	19,000	10,000	4,000	1,000
20- 40 — $ 6,570 ($ 90)	111,000	101,000	106,000	95,000	80,000	50,000	30,000	18,000	9,000	2,000
40- 60 — $10,670 ($ 390)	85,000	85,000	102,000	96,000	89,000	61,000	41,000	27,000	14,000	3,000
60- 80 — $14,500 ($ 1,010)	63,000	69,000	93,000	94,000	95,000	72,000	52,000	37,000	22,000	6,000
80- 90 — $19,350 ($ 2,000)	22,000	28,000	41,000	44,000	49,000	40,000	31,000	24,000	16,000	6,000
90-100 — $27,300 ($ 3,920)	14,000	19,000	29,000	38,000	48,000	44,000	39,000	34,000	25,000	12,000
Totals	452,000	423,000	482,000	452,000	422,000	301,000	212,000	151,000	90,000	30,000

Note: Each cell in the table estimates the number of high school graduates that are described at the margins by SAT score and income classifications. For example, the table estimates that approximately 61,000 high school graduates score between 400 and 449 on the SAT-verbal sections and come from families at the bottom 20 percent of the U.S. family incomes.

Total number of high school graduates: 3,015,000

Table B-4. 1974 Joint Distribution of U.S. High School Graduates: Aptitude and Family Income

SAT-*verbal score*	*200-249*	*250-299*	*300-349*	*350-399*	*400-449*	*450-499*	*500-549*	*550-599*	*600-649*	*650-800*
SAT percentile (Cutoff level for lowest score)	0	15	29	45	60	74	84	91	96	99

Family income											
Percentile	*Amount (Est. parent contribution)*										
0- 20	$ 000										
	($ 000)	163,000	125,000	116,000	88,000	64,000	35,000	19,000	10,000	4,000	1,000
20- 40	$ 7,580										
	($ 100)	115,000	104,000	110,000	99,000	82,000	52,000	32,000	19,000	10,000	2,000
40- 60	$12,300										
	($ 490)	88,000	88,000	106,000	100,000	92,000	64,000	42,000	28,000	15,000	3,000
60- 80	$16,720										
	($ 1,220)	65,000	72,000	97,000	97,000	99,000	74,000	53,000	39,000	23,000	7,000
80- 90	$22,300										
	($ 2,400)	23,000	29,000	42,000	46,000	51,000	42,000	33,000	26,000	16,000	6,000
90-100	$31,500										
	($ 4,600)	15,000	20,000	30,000	40,000	50,000	46,000	40,000	35,000	26,000	12,000
Totals		469,000	438,000	501,000	470,000	438,000	313,000	219,000	157,000	94,000	31,000

Note: Each cell in the table estimates the number of high school graduates that are described at the margins by SAT score and income classifications. For example, the table estimates that approximately 64,000 high school graduates score between 400 and 449 on the SAT-verbal sections and come from families at the bottom 20 percent of the U.S. family incomes.

Total number of high school graduates: 3,130,000

Table B-5. 1976 Projected Joint Distribution of U.S. High School Graduates: Aptitude and Family Income

SAT-verbal score	*200-249*	*250-299*	*300-349*	*350-399*	*400-449*	*450-499*	*500-549*	*550-599*	*600-649*	*650-800*
SAT percentile (Cutoff level for lowest score)	0	15	29	45	60	74	84	91	96	99
Family income										
Percentile / *Amount (Est. parent contribution)*										
0- 20 $ 000 ($ 000)	165,000	127,000	117,000	89,000	65,000	36,000	19,000	11,000	4,000	1,000
20- 40 $ 8,680 ($ 120)	117,000	106,000	112,000	100,000	84,000	53,000	32,000	19,000	10,000	2,000
40- 60 $14,100 ($ 590)	89,000	89,000	108,000	101,000	93,000	64,000	43,000	28,000	15,000	4,000
60- 80 $19,100 ($ 1,460)	66,000	73,000	98,000	99,000	100,000	75,000	54,000	39,000	23,000	7,000
80- 90 $25,500 ($ 2,870)	24,000	29,000	43,000	47,000	52,000	42,000	33,000	26,000	17,000	6,000
90-100 $36,100 ($ 5,200)	15,000	20,000	30,000	40,000	51,000	47,000	41,000	36,000	26,000	13,000
Totals	476,000	444,000	508,000	476,000	445,000	317,000	222,000	159,000	95,000	33,000

Note: Each cell in the table estimates the number of high school graduates that are described at the margins by SAT score and income classifications. For example, the table estimates that approximately 65,000 high school graduates score between 400 and 449 on the SAT-verbal sections and come from families at the bottom 20 percent of the U.S. family incomes.

Total number of high school graduates: 3,175,000

Table B-6. 1978 Projected Joint Distribution of U.S. High School Graduates: Aptitude and Family Income

SAT-verbal score	*200-249*	*250-299*	*300-349*	*350-399*	*400-449*	*450-499*	*500-549*	*550-599*	*600-649*	*650-800*
SAT percentile (Cutoff level for lowest score)	0	15	29	45	60	74	84	91	96	99
Family income										
Percentile / *Amount (Est. parent contribution)*										
0- 20 $ 000 ($ 000)	166,000	127,000	118,000	90,000	65,000	36,000	20,000	10,000	4,000	1,000
20- 40 $ 9,940 ($ 140)	117,000	106,000	112,000	100,000	84,000	53,000	32,000	20,000	10,000	2,000
40- 60 $16,100 ($ 690)	89,000	90,000	108,000	101,000	93,000	64,000	43,000	28,000	16,000	4,000
60- 80 $21,900 ($ 1,720)	66,000	73,000	98,000	99,000	101,000	76,000	54,000	39,000	23,000	7,000
80- 90 $29,200 ($ 3,370)	24,000	29,000	43,000	47,000	52,000	42,000	33,000	26,000	17,000	6,000
90-100 $41,300 ($ 6,000)	15,000	20,000	30,000	40,000	51,000	47,000	41,000	36,000	26,000	13,000
Totals	477,000	445,000	509,000	477,000	446,000	318,000	223,000	159,000	96,000	33,000

Note: Each cell in the table estimates the number of high school graduates that are described at the margins by SAT score and income classifications. For example, the table estimates that approximately 65,000 high school graduates score between 400 and 449 on the SAT-verbal sections and come from families at the bottom 20 percent of the U.S. family incomes.

Total number of high school graduates: 3,183,000

Table B-7. 1984 Projected Joint Distribution of U.S. High School Graduates: Aptitude and Family Income

SAT-verbal score	*200-249*	*250-299*	*300-349*	*350-399*	*400-449*	*450-499*	*500-549*	*550-599*	*600-649*	*650-800*
SAT percentile (Cutoff level for lowest score)	0	15	29	45	60	74	84	91	96	99
Family income										
Percentile / *Amount (Est. Parent contribution)*										
0- 20 $ 000 (Not est.)	141,000	108,000	100,000	76,000	55,000	31,000	17,000	9,000	4,000	1,000
20- 40 $14,900 (Not est.)	100,000	91,000	95,000	85,000	72,000	45,000	28,000	17,000	8,000	2,000
40- 60 $24,200 (Not est.)	76,000	77,000	92,000	86,000	80,000	55,000	36,000	24,000	13,000	3,000
60- 80 $32,900 (Not est.)	57,000	62,000	84,000	85,000	86,000	64,000	46,000	33,000	20,000	6,000
80- 90 $43,900 (Not est.)	20,000	25,000	37,000	40,000	44,000	36,000	28,000	22,000	14,000	5,000
90-100 $62,000 (Not est.)	13,000	17,000	26,000	35,000	43,000	40,000	35,000	31,000	22,000	10,000
Totals	407,000	380,000	434,000	407,000	380,000	271,000	190,000	136,000	81,000	27,000

Note: Each cell in the table estimates the number of high school graduates that are described at the margins by SAT score and income classifications. For example, the table estimates that approximately 55,000 high school graduates score between 400 and 449 on the SAT-verbal sections and come from families at the bottom 20 percent of the U.S. family incomes.

Total number of high school graduates: 2,713,000

Appendix C.
Cumulative Distribution Tables of U.S. High School Graduates: Aptitude and Family Income (1964-1984, Selected Years)

Table C-1. 1964 Cumulative Distribution of U.S. High School Graduates: Aptitude and Family Income

SAT-verbal score	*200*	*250*	*300*	*350*	*400*	*450*	*500*	*550*	*600*	*650*
SAT percentile	0	15	29	45	60	74	84	91	96	99

Family income

Percentile	*Amount (Est. parent contribution)*									
0	$ 000 (Not est.)	2,290,000	1,947,000	1,626,000	1,260,000	917,000	596,000	367,000	207,000	92,000	23,000
20	$ 3,700 (Not est.)	1,832,500	1,608,500	1,379,500	1,097,500	818,500	544,500	341,500	195,500	88,500	22,500
40	$ 6,260 (Not est.)	1,375,000	1,235,000	1,082,000	880,000	673,000	461,000	296,000	173,000	80,000	21,000
60	$ 8,780 (Not est.)	918,000	842,000	754,000	630,000	496,000	350,000	231,000	139,000	66,000	18,000
80	$13,700 (Not est.)	460,000	432,000	397,000	344,000	281,000	207,000	142,000	89,000	44,000	13,000
90	$17,100 (Not est.)	230,000	219,000	205,000	183,000	154,000	117,000	83,000	54,000	28,000	9,000

Note: Each cell in the table estimates the number of high school graduates whose SAT scores are *at or higher than* the designated scores at the margin, *and* whose family income is *at or higher than* the designated income level. For example, the table estimates that approximately 350,000 high school graduates in this year have SAT-verbal scores at or higher than 450 *and* family incomes at or higher than the 60th percentile level.

Total number of high school graduates: 2,290,000

Table C-2. 1970 Cumulative Distribution of U.S. High School Graduates: Aptitude and Family Income

SAT-verbal score	*200*	*250*	*300*	*350*	*400*	*450*	*500*	*550*	*600*	*650*
SAT percentile	0	15	29	45	60	74	84	91	96	99
Family income										
Percentile / *Amount (Est. parent contribution)*										
0 — $ 000 ($ 000)	2,896,000	2,462,000	2,057,000	1,594,000	1,159,000	754,000	464,000	261,000	116,000	29,000
20 — $ 5,830 ($ 80)	2,316,000	2,033,000	1,744,000	1,388,000	1,035,000	689,000	432,000	247,000	111,000	28,000
40 — $ 9,460 ($ 300)	1,737,000	1,561,000	1,368,000	1,114,000	852,000	583,000	374,000	218,000	100,000	26,000
60 — $12,860 ($ 800)	1,158,000	1,063,000	952,000	796,000	626,000	442,000	292,000	175,000	83,000	23,000
80 — $17,170 ($ 1,580)	579,000	544,000	500,000	433,000	353,000	260,000	179,000	112,000	56,000	17,000
90 — $24,200 ($ 3,430)	290,000	277,000	259,000	231,000	194,000	148,000	106,000	69,000	36,000	12,000

Note: Each cell in the table estimates the number of high school graduates whose SAT scores are *at or higher than* the designated scores at the margin, *and* whose family income is *at or higher than* the designated income level. For example, the table estimates that approximately 442,000 high school graduates in this year have SAT-verbal scores at or higher than 450 *and* family incomes at or higher than the 60th percentile level.

Total number of high school graduates: 2,896,000

Table C-3. 1972 Cumulative Distribution of U.S. High School Graduates: Aptitude and Family Income

SAT-verbal score	*200*	*250*	*300*	*350*	*400*	*450*	*500*	*550*	*600*	*650*
SAT percentile	0	15	29	45	60	74	84	91	96	99

Family income											
Percentile	*Amount (Est. parent contribution)*										
0	$ 000										
	($ 000)	3,015,000	2,563,000	2,140,000	1,658,000	1,206,000	784,000	483,000	271,000	120,000	30,000
20	$ 6,570										
	($ 90)	2,412,000	2,117,000	1,815,000	1,444,000	1,077,000	716,000	449,000	256,000	115,000	29,000
40	$10,670										
	($ 390)	1,809,000	1,625,000	1,424,000	1,159,000	887,000	606,000	389,000	226,000	104,000	27,000
60	$14,500										
	($ 1,010)	1,206,000	1,107,000	991,000	828,000	652,000	460,000	304,000	182,000	87,000	24,000
80	$19,350										
	($ 2,000)	603,000	567,000	520,000	450,000	368,000	271,000	187,000	117,000	59,000	18,000
90	$27,300										
	($ 3,920)	302,000	288,000	269,000	240,000	202,000	154,000	110,000	71,000	37,000	12,000

Note: Each cell in the table estimates the number of high school graduates whose SAT scores are *at or higher than* the designated scores at the margin, *and* whose family income is *at or higher than* the designated income level. For example, the table estimates that approximately 460,000 high school graduates in this year have SAT-verbal scores at or higher than 450 *and* family incomes at or higher than the 60th percentile level.

Total number of high school graduates: 3,015,000

Table C-4. 1974 Cumulative Distribution of U.S. High School Graduates: Aptitude and Family Income

SAT-verbal score	*200*	*250*	*300*	*350*	*400*	*450*	*500*	*550*	*600*	*650*
SAT percentile	0	15	29	45	60	74	84	91	96	99

Family income										
Percentile	*Amount (Est. parent contribution)*									
0	$ 000									
	($ 000)	3,130,000	2,661,000	2,223,000	1,722,000	1,252,000	814,000	501,000	282,000	125,000	31,000
20	$ 7,580									
	($ 100)	2,505,000	2,199,000	1,886,000	1,501,000	1,119,000	745,000	467,000	267,000	120,000	30,000
40	$12,300									
	($ 490)	1,880,000	1,689,000	1,480,000	1,205,000	922,000	630,000	404,000	236,000	108,000	28,000
60	$16,720									
	($ 1,220)	1,254,000	1,151,000	1,030,000	861,000	678,000	478,000	316,000	190,000	90,000	25,000
80	$22,300									
	($ 2,400)	628,000	590,000	541,000	469,000	383,000	282,000	194,000	121,000	60,000	18,000
90	$31,500									
	($ 4,600)	314,000	299,000	279,000	249,000	209,000	159,000	113,000	73,000	38,000	12,000

Note: Each cell in the table estimates the number of high school graduates whose SAT scores are *at or higher than* the designated scores at the margin, *and* whose family income is *at or higher than* the designated income level. For example, the table estimates that approximately 478,000 high school graduates in this year have SAT-verbal scores at or higher than 450 *and* family incomes at or higher than the 60th percentile level.

Total number of high school graduates: 3,130,000

Table C-5. 1976 Projected Cumulative Distribution of U.S. High School Graduates: Aptitude and Family Income

SAT-*verbal score*	*200*	*250*	*300*	*350*	*400*	*450*	*500*	*550*	*600*	*650*
SAT percentile	0	15	29	45	60	74	84	91	96	99

Family income											
Percentile	*Amount (Est. parent contribution)*										
0	$ 000										
	($ 000)	3,175,000	2,699,000	2,255,000	1,747,000	1,271,000	826,000	509,000	287,000	128,000	33,000
20	$ 8,680										
	($ 120)	2,541,000	2,230,000	1,913,000	1,522,000	1,135,000	755,000	474,000	271,000	123,000	32,000
40	$14,100										
	($ 590)	1,906,000	1,712,000	1,501,000	1,222,000	935,000	639,000	411,000	240,000	111,000	30,000
60	$19,100										
	($ 1,460)	1,272,000	1,167,000	1,045,000	874,000	688,000	485,000	321,000	193,000	92,000	26,000
80	$25,500										
	($ 2,870)	638,000	599,000	550,000	477,000	390,000	287,000	198,000	124,000	62,000	19,000
90	$36,100										
	($ 5,200)	319,000	304,000	284,000	254,000	214,000	163,000	116,000	75,000	39,000	13,000

Note: Each cell in the table estimates the number of high school graduates whose SAT scores are *at or higher than* the designated scores at the margin, *and* whose family income is *at or higher than* the designated income level. For example, the table estimates that approximately 485,000 high school graduates in this year have SAT-verbal scores at or higher than 450 *and* family incomes at or higher than the 60th percentile level.

Total number of high school graduates: 3,175,000

Table C-6. 1978 Projected Cumulative Distribution of U.S. High School Graduates: Aptitude and Family Income

SAT-*verbal score*	*200*	*250*	*300*	*350*	*400*	*450*	*500*	*550*	*600*	*650*
SAT percentile	0	15	29	45	60	74	84	91	96	99

Family income

Percentile	*Amount (Est. parent contribution)*										
0	$ 000										
	($ 000)	3,183,000	2,706,000	2,261,000	1,752,000	1,275,000	829,000	511,000	288,000	129,000	33,000
20	$ 9,940										
	($ 140)	2,546,000	2,235,000	1,917,000	1,526,000	1,139,000	758,000	476,000	273,000	124,000	32,000
40	$16,100										
	($ 690)	1,910,000	1,716,000	1,504,000	1,225,000	938,000	641,000	412,000	241,000	112,000	30,000
60	$21,900										
	($ 1,720)	1,274,000	1,169,000	1,047,000	876,000	690,000	486,000	321,000	193,000	92,000	26,000
80	$29,200										
	($ 3,370)	638,000	599,000	550,000	477,000	390,000	287,000	198,000	124,000	62,000	19,000
90	$41,300										
	($ 6,000)	319,000	304,000	284,000	254,000	214,000	163,000	116,000	75,000	39,000	13,000

Note: Each cell in the table estimates the number of high school graduates whose SAT scores are *at or higher than* the designated scores at the margin, *and* whose family income is *at or higher than* the designated income level. For example, the table estimates that approximately 486,000 high school graduates in this year have SAT-verbal scores at or higher than 450 *and* family incomes at or higher than the 60th percentile level.

Total number of high school graduates: 3,183,000

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Table C-7. 1984 Projected Cumulative Distribution of U.S. High School Graduates: Aptitude and Family Income

SAT-verbal score	*200*	*250*	*300*	*350*	*400*	*450*	*500*	*550*	*600*	*650*
SAT percentile	0	15	29	45	60	74	84	91	96	99

Family income											
Percentile	*Amount (Est. parent contribution)*										
0	($ 000										
	(Not est.)	2,713,000	2,306,000	1,926,000	1,492,000	1,085,000	705,000	434,000	244,000	108,000	27,000
20	$14,900										
	(Not est.)	2,171,000	1,905,000	1,633,000	1,299,000	968,000	643,000	403,000	230,000	103,000	26,000
40	$24,200										
	(Not est.)	1,628,000	1,462,000	1,281,000	1,042,000	796,000	543,000	348,000	203,000	93,000	24,000
60	$32,900										
	(Not est.)	1,086,000	996,000	892,000	745,000	585,000	412,000	272,000	163,000	77,000	21,000
80	$43,900										
	(Not est.)	543,000	510,000	468,000	405,000	330,000	243,000	167,000	104,000	51,000	15,000
90	$62,000										
	(Not est.)	272,000	259,000	242,000	216,000	181,000	138,000	98,000	63,000	32,000	10,000

Note: Each cell in the table estimates the number of high school graduates whose SAT scores are *at or higher than* the designated scores at the margin, *and* whose family income is *at or higher than* the designated income level. For example, the table estimates that approximately 412,000 high school graduates in this year have SAT-verbal scores at or higher than 450 *and* family incomes at or higher than the 60th percentile level.

Total number of high school graduates: 2,713,000

Appendix D: Notes on the Derivation of the Joint and Cumulative Distribution Tables

Major Elements: The Relationship of Income and Aptitude. The development of tables estimating numbers of high school graduates classified by income and verbal ability required two major steps:

1. Creating a table for 1974 high school graduates of the probabilities of jointly encountering SAT-verbal scores within 10 specified ranges (200-249, 250-299, and so on by 50-point intervals, except for a final interval of 650-800) and having a percentile standing on pretax family income within six given percentile ranges (0-20, 20-40, 40-60, 60-80, 80-90, 90-100).

2. Calculating cell frequencies for the years 1964, 1970, 1972, 1974, 1976, 1978, and 1984 by multiplying each of the joint probabilities determined in step 1 by the estimated or projected total number of high school graduates for the given year.

These tasks were designed and executed by Rex Jackson, Program Director, Educational Testing Service, Princeton, New Jersey. With the exception of the projection of nominal levels of family income and expected parental contributions for Appendixes B and C, the methodology described in these notes is Jackson's. Without his careful work this paper could not have been completed.

Estimation of Joint Probabilities. Information from two major sources was used to develop the basic table of joint probabilities. The first major source was the 1974 Preliminary Scholastic Aptitude Test/National Merit Scholarship Qualifying Test (PSAT/NMSQT) Norms Study, conducted by Educational Testing Service for the College Entrance Examination Board. As part of this study, nearly 18,000 high school juniors in a nationally representative sample of high schools were tested with the PSAT/NMSQT in the fall of 1974. (The PSAT/NMSQT is a short version of the SAT that yields scores on a scale directly comparable to the SAT 200-800 score scale.) The distribution of SAT-verbal scores that would be obtained by all high school seniors was then estimated by adjusting the score results of the PSAT/NMSQT for juniors to take into account differences between junior and senior scores observed in a prior study. Checks on the sample, and comparison of sample data with information on the national population of high school students from other sources, indicated that the sample is closely representative of the national population. The estimates developed by this study of the verbal ability of high school juniors and seniors (as measured by the SAT)

are believed to be the most current and accurate data available at this time.

A significant disadvantage of the PSAT/NMSQT norming sample was the absence of information on parental income for students in the sample. However, if the relationship of pretax family income to SAT-verbal scores could be determined, the estimated joint probability table could be constructed by taking the proportion of students at each score level (as determined by the 1974 Norms Study) and distributing that proportion across the family income percentile categories in accordance with the postulated relationship.

The second major information source was the National Longitudinal Study (NLS) of the high school graduating class of 1972. The NLS study was sponsored by the U.S. Department of Health, Education, and Welfare, National Center for Educational Statistics; the base-year study was administered by Educational Testing Service. This source helped establish the relationship between aptitude and family income. The NLS Base Year Study of the class of 1972 included the following elements: a student questionnaire containing a question about parents' family income; and a test battery, including a vocabulary test and a reading measure. The questionnaire and tests were administered to a national probability sample of 1972 high school seniors. Other information about students in the sample was collected from the students' schools, including SAT-verbal scores in about a third of the individual cases.

The first step in using the NLS data for the purpose at hand was to compute a verbal score (consisting of vocabulary plus reading) from the NLS test. Then an equating study was performed and the SAT-verbal score equivalent of each NLS verbal score was determined (by the equipercentile method) using data for those students who had taken both SAT and the NLS tests. The correlation between the SAT-verbal scores reported by the schools and the NLS verbal scores (which were based on two quite brief tests) was found to be 0.84. The conversion of NLS test scores to SAT-verbal equivalent levels appeared to be a reasonable process for aggregate analysis. As a result of the equating, SAT-verbal scores or equivalents were available for 17,061 students in the NLS sample (5,708 students with school-reported SAT-verbal scores and 11,353 additional students with NLS verbal scores converted to SAT-verbal scores). Of these, 13,174 students also responded to the survey question concerning parental income.

The actual response categories for the NLS family-income question were: less than $3,000; $3,000-$5,999; $6,000-$7,499; $7,500-$8,999; $9,000-$10,499; $10,500-$11,999; $12,000-$13,499; $13,500-$14,999; $15,000-$18,000; over $18,000. Since information was needed on the relationship of SAT-verbal scores to relative percentile standing on parental pretax income (among high school graduates), the midpercentile rank of each income category was determined for the full sample and each response to the income question was then converted to the standard score (z) corresponding to the category's percentile rank in a normal distribution. It was believed that these normalized standard deviates would be more nearly linearly related to the test scores than the original responses or their percentile ranks. The correlation between these income values and the test scores was found to be 0.3466. Since both the NLS sample and the PSAT/NMSQT norming sample were designed to be representative of national populations of high school students and since the abilities of students in each sample appeared to be about equally diverse, this correlation was taken without correction as a reasonable estimate of the correlation between verbal test scores and normalized relative standing on income for 1974 high school seniors.

The normalized standing (z score) on income for a given population by definition has a mean of zero and standard deviation of one. The mean of the estimated distribution of SAT-verbal scores for 1974 high school seniors was 371.77 and the standard deviation 115.74. Thus the regression of z (income) on SAT-verbal score was taken as $z = 0.3466\ [(SAT-371.77)/115.74]$ or $z = 0.00299\ (SAT)-1.1133$, with a standard error of estimate of $\sqrt{1-(0.3466)^2} = 0.9380$. The conditional distribution of z score for income given at SAT-verbal score was then taken to be a normal distribution with mean of $0.00299\ (SAT) - 1.1133$ and standard deviation of 0.9380. Since the income percentile classifications of interest were 0-20, 20-40, 40-60, 60-80, 80-90, and 90-100, for each SAT-verbal score the density of the conditional distribution of income within each of these intervals (e.g., area above $z = 1.28$ for the interval 90-100th percentile) was determined and multiplied by the SAT-verbal score marginal density to estimate the joint probability. These joint probabilities were then aggregated to form the final table described earlier.

Development of the Joint Frequency Tables. A basic decision made prior to forming the estimates and projections was that the table of joint probabilities developed for 1974 high school seniors portray sufficiently stable relationships so that they hold basically true for

other annual classes as well. Since income is expressed as relative standing among high school graduates, the marginal percentile distribution of this variable is by definition constant across the years. However, whether the estimated distribution of SAT-verbal scores and the estimated relationship of these scores to percentile standing on income are likely to be relatively constant is open to question.

With regard to scores, although there has been much recent discussion of declining test scores (in particular SAT-verbal scores), there does not appear to be conclusive evidence that the verbal abilities of *all* high school seniors nationally are declining. In addition, there do not appear to be strong grounds for projecting such a decline into the future. Since convincing evidence on either side of the question is lacking, it seemed appropriate to develop the projections assuming no basic change in the distribution of verbal aptitude. This accomplished, changes in the overall number of high school graduates *under this condition* can be assessed. Those with other beliefs about probable changes in the verbal aptitude of high school graduates may view the tables as either unduly optimistic or pessimistic depending on their points of view, and may make whatever interpretation seems appropriate to them.

As to the relationship between scores and income, the correlation of about 0.35 used in this study is consistent with the findings of numerous studies during the past 20 years of the relationship of academic ability to socioeconomic status, which have most frequently found correlations in the range 0.35 to 0.40. These studies lend support both to use of the correlation observed for the NLS sample in forming the basic table of probabilities and to the assumption that the relationship underlying this table may remain relatively stable over the next 10 years.

Once it is assumed that the basic joint probability table can reasonably apply also to the 1964-1984 period, tables of joint frequencies are developed for each year simply by multiplying the estimated total number of high school graduates for 1974 by each of the cell probabilities.

The calculated number of high school graduates in each cell was rounded to the nearest thousand students, helping to signal the approximate nature of this work. It also seems reasonable to estimate that the calculated cell values may be in error by as much as 10 to 15 percent at the middle percentile levels of income and aptitude, and perhaps by as much as 50 percent at the extreme per-

centile levels. Whatever the sampling errors and errors of estimate, however, the general relationships displayed and their stability over time do not appear to be in serious question.

Having constructed a series of joint distribution tables, it was possible to recombine the calculated cell values and to produce a corresponding series of *cumulative* distribution tables. In these cumulative tables, the number in each cell represents the number of students who fit the marginal description of family income and measured verbal aptitude *plus* all those with higher family income *and* with higher measured verbal aptitude. In several of the practical applications of this work, a cumulative table is quicker and more convenient to use.

Other Information Sources. The total number of U.S. high school graduates for the years 1964-72 is the series reported by the National Center for Educational Statistics. The estimates for 1974, 1976, and 1978 are from *Projections of Educational Statistics (1973)*, National Center for Educational Statistics, Table 20. Estimates for 1984 are from *Demographics: 1975-1990*, Education and Economic Systems, Inc., Boulder, Colorado, November 1975, page 22.

Nominal values of pretax family income corresponding to designated percentile levels of family income were calculated from the following sources in the following manner. The basic time series for the distribution of family income in the United States (1960-74) comes from *Money Income and Poverty Status of Families and Persons in the United States: 1974*, U.S. Bureau of the Census, Current Population Reports, Series P-60, No. 99 (U.S. Government Printing Office, Washington, D.C., 1974), Table 2. However, this series does not separately estimate the family incomes of greatest interest: income of families of high school graduates. Also, earlier work in 1963 by Jeannette M. Fitzwilliams in the Office of Business Economics, U.S. Department of Commerce, points out that the basic census series for family income does not account for certain nonmoney income items such as wages in kind, the value of food and fuel produced and consumed on farms, and certain items of imputed rent and interest. These additional items do not appear to change substantially the nominal income values for the lower and middle percentile cutoff points of the census family income series, but they do imply approximately a 10 percent increase in nominal family income at the 90th percentile level.

In order to adjust the basic census series upward to attempt to reflect family income levels for the families of high school grad-

uates, computer analysis was made of the 1960 and 1970 sample surveys of the U.S. Census Bureau, yielding a distribution of family incomes for families containing at least one 17-year-old son or daughter. Reported values at the 90th percentile level were adjusted upward by 10 percent to take account of the additional imputed income items noted above.

That method produced the family income distribution which appears in the 1970 joint and cumulative tables in this study. Corresponding family income distributions for 1964, 1972, and 1974 were derived by adjusting the 1970 distribution by the percentage differences between those years and 1970 that occurred in median family income in the basic census time series.

Family income from 1974 through 1984 was projected to increase by 7 percent per year. This assumption, or any other specific one, is highly debatable since it depends upon the relatively unpredictable near-term performance of the nation's economy. Median family income did increase an average 7 percent per year during the last five years for which data are readily available (1968-73). If one estimates that productivity in the labor force will increase about 2 percent per year and that the Consumer Price Index (CPI) will increase about 5 percent per year, family income should increase approximately 7 percent. The same result could be anticipated with 1 percent per year productivity increase and 6 percent per year change in CPI. During the 1960s the average increase in productivity was greater and the inflation rate significantly lower than in the projection estimates above. Therefore, depending on one's predictions about the economy, one now could reasonably estimate a lower rate of increase than 7 percent in family income or a higher one. If these tables have any careful use five or ten years from now, that use probably should be preceded by checking the income figures estimated here against later actual figures, and by readjusting the dollar values of family income that represent the correct labels for each designated percentile level of income.

Finally, estimates of expected parental contribution for college expenses for 1970 through 1978 were provided by James E. Nelson, Vice President for Program Planning and Research of the College Entrance Examination Board. Parental contribution amounts were calculated for each year, based on a random sample of more than 10,000 Parents' Confidential Statements from parents of students applying for financial aid during the 1974-75 year. The CSS uniform methodology of need analysis was used in a computerized

modeling system to estimate expectations for each year, accounting for actual and assumed income growth and inflation. Only positive or zero amounts of expected contribution were considered, and 1975-76 rates of income tax and FICA withholding tax were used as constants for all years for the purpose of comparison. The results represent average expected contributions by income level and the random sample from which the average was derived included all kinds of family financial circumstances: varying family size and numbers of children in college; single and combined parent incomes; a range of actual family assets and net worth; and, actual calculations of taxes, allowances, and unusual expenses.

Since the standards of assessment applied by CSS have changed a number of times, sometimes significantly, during the past 10 years, two questions of subjective judgment required decisions before preparing this final element in the joint and cumulative distribution tables. First, is it preferable to be historically accurate, showing the actual and varying standards of expected parental contribution in the past years displayed, or is it preferable to show what the expected parental contributions would have been in the past if common (current) standard CSS expectations had prevailed since 1964?

Income intervals	*Average expected parental contributions from income and assets*		
	1974	*1976*	*1978*
Below $4,000	$	$ 0	$ 0
$4,000-5,999	35	20	20
$6,000-7,999	95	90	60
$8,000-9,999	130	105	70
$10,000-11,999	360	280	225
$12,000-13,999	555	455	295
$14,000-15,999	865	710	575
$16,000-17,999	1,160	1,030	790
$18,000-19,999	1,655	1,445	1,190
$20,000-21,999	1,960	1,755	1,520
$22,000-23,999	2,835	2,485	1,960
$24,000-25,999	2,840	2,725	2,270
$26,000-27,999	3,610	3,315	2,890
$28,000-29,999	3,725	3,560	3,190
$30,000 and above	6,370	5,950	5,485

Since most of the uses anticipated for the joint distribution tables are to assist work on current problems, the common-standards presentation seemed preferable. Second, if a common standards approach then is used in the joint distribution tables, is it so accurate as to merit extending – even for illustrative purposes – back to 1964 and ahead to 1984? A conservative decision was made on this question, and the full ten-year extension was not made. Anyone wishing to make that extension may graph the three years of distribution reported in the table on the previous page and derive amounts of expected parental contribution in the 1964 and 1984 joint distribution tables.

Applying Marketing Theory to College Admissions

by Philip Kotler

Colleges pride themselves on being different from other organizations. Their product, higher education, is held in great respect and is deemed essential to the further progress of society. This product is made available, in one form or another, to those who are qualified, who want it, and who can afford it. It is rarely sold to make a profit.

For generations, higher education has had an assured market, and as long as colleges were operating in a seller's market, it was unthinkable to view it as a product to be "sold." In a seller's market, suppliers face a high level of demand, they can pick and choose among customers, and they do not need to attend to the nuances of demand, competition, and customer satisfaction. The product in a seller's market is bought, not sold.

Colleges were unaware of their vulnerability until the seller's market began to change to a buyer's market. But educators are now confronting four grim predictions: (1) The annual number of high school graduates is expected to peak in 1976-77 at 3.199 million and thereafter decline steadily, reaching 2.835 million in 1982-83;[1] (2) The number of high school graduates electing to go to college may decline; (3) A higher proportion of college-bound high school students may elect to attend community colleges instead of four-year colleges for their first year; (4) The absolute and relative future level of tuition will deter college-going and will particularly hurt private colleges.

These predictions are being accepted as fact by an increasing number of educators and are seeding a revolution in their thinking about the nature of their "business." Colleges are beginning to recognize the similarities between themselves and business organizations.

College administrators are eagerly studying the latest business theory in finance, accounting, corporate strategy, organizational behavior, and management science. Marketing has been slower in gaining a hearing than other business disciplines because of its negative connotations in the minds of educators and the public.

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1. Martin M. Frankel and J. Fred Beamer, *Projections of Educational Statistics to 1982-83*, 1973 edition. Washington, D.C.: U.S. Office of Education, National Center for Educational Statistics, 1974, pp. 45, 154.

Marketing seems also to be a threat to the comfortable illusion that higher education is a sublime activity that needs no market engineering to survive.

As colleges begin to accept marketing responsibility, many of them may plunge into it in an excessive and misguided way, equating marketing with hard selling, as the following examples show:

One college passed out promotional frisbees to students on spring break in Fort Lauderdale.

A midwestern college sent first-contact letters to high school students – based on alumni recommendations – reading "Congratulations! You've been accepted."

North Kentucky State University planned to release 103 balloons filled with scholarship offers, but canceled the plans because of adverse reaction.

St. Joseph's College in Indiana offered undergraduate students rebates of $100 for each new student who actually enrolled – up to a limit of the student recruiter's total tuition. They discontinued this last practice after much criticism from colleges across the country.

One educational consultant suggested half-jokingly that colleges' future sales techniques may include money-back guarantees for courses and professors not liked and slogans such as "$59.95 a credit hour – none priced lower."[2]

These activities represent only the tip of the marketing iceberg and certainly not the substance. *In fact, the aim of marketing is to make selling unnecessary. The better the marketing job, the less the need for hard selling.* A college should strive to carry out its marketing positioning and operations in such a way as to create a naturally high level of student demand for its services without resorting to desperate selling efforts.

Before examining how marketing theory can be applied to college admissions, some definitions are necessary. To begin, *marketing* is defined as human activity undertaken to satisfy some set of needs through exchange processes. In the college context, we recognize the existence of needs and wants in young adults and others for a higher education. We also recognize the existence of suppliers who

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2. Excerpts from Daniel Egler, "Colleges Beat Bushes to Lure New Students, Up Enrollment," *Chicago Tribune*, April 14, 1974, Section 1, p. 33.

provide higher education services at a cost to consumers. Marketing describes the activities of both buyers and sellers, in this case students and colleges, in searching for suitable ways to satisfy their respective requirements.

Marketing management is the activity of one or both parties in a potential transaction who give thought to improving the probability of a favorable response from the other party. Marketing management is defined as the analysis, planning, implementation, and control of programs designed to bring about desired exchanges with target markets for the purpose of achieving organizational objectives.

In the attempt to determine what philosophy might guide these marketing efforts, the *marketing concept* has evolved as the most useful concept for reconciling the interests of the buyers, the sellers, and society. The marketing concept is defined as customer orientation backed by coordinated marketing aimed at generating customer satisfaction as the key to satisfying organizational goals. The marketing concept supercedes both the product concept, which focuses on the product rather than the market, and the selling concept, which focuses on the need of the seller to sell the product rather than on the need of the buyer to buy the product.

This paper presents the two key processes in admissions marketing: the college marketing process and the student decision process. The college marketing process is the set and sequence of activities that are under the control of a college and can affect the size, quality, and preferences of its applicant pool. The student decision process is the set and sequence of activities of college-interested students who are investigating, applying to, and choosing colleges. College admissions office activity must be harmonized with the total college marketing process to be effective. Furthermore, it must be planned with the deepest understanding of the student decision process. The college marketing processes and the student decision processes lead to various market flirtations and courtships ending in the ultimate marriages of particular students with particular colleges.

College Marketing Process

It is a widespread misconception among college administrators that the college marketing process is the responsibility of the admissions office. When student enrollment objectives are not met, the college president is ready to pour more money into the admissions office or

replace its current director with a new one.

My thesis is that *the college marketing process starts before the work of the admissions office and continues beyond the work of the admissions office.* The college marketing process, in fact, comprises seven basic activities (Figure 1): institutional positioning, portfolio planning, applicant development, applicant evaluation and notification, recruitment effort evaluation, college improvement planning, and alumni loyalty development. The admissions office is responsible primarily for three of these: applicant development, applicant evaluation and notification, and recruitment effort evaluation. In the paragraphs that follow, each of the seven activities in the college marketing process is examined.

Institutional Positioning. The marketing work of a college does not begin in the admissions office but in the offices of the president and the board of trustees. The college's top policymakers must articulate a mission and purpose for the college that makes sense in the light of its history, resources, opportunities, and competition. The administration's statement should set forth specific educational objectives and philosophies and avoid vague generalities such as "to deliver the best quality education possible." It should define a distinct posture of the college relative to other colleges. The education buyer should be able to tell how well the college is likely to meet his or her particular educational needs and desires.

Some colleges have developed a well-defined posture in the marketplace—consider Harvard, Antioch, and Oberlin. But many colleges fail to connote in the public mind any specific educational attributes. Their vagueness may be a calculated one—they do not want to limit their appeal, and they want to appear to be the right place for as many people as possible. Or their vagueness may simply reflect a failure to confront the question of their own personality and opportunities.

Figure 1. Basic Activities That Make Up the College Marketing Process

1. Institutional positioning
2. Portfolio planning
3. Applicant development
4. Applicant evaluation and notification
5. Recruitment effort evaluation
6. College improvement planning
7. Alumni loyalty development

An increasing number of college administrators are recognizing the need to "take a position" in the college market, to commit themselves to some viable part of the total educational market that they will serve and serve well. Institutional positioning requires recognizing that markets are made up of segments. A postural commitment is the most difficult step a college can take in the marketing process, but once taken, it makes everything else much easier. The college marketing process begins with the college's positioning.

Institutional positioning results from a decision process that involves four steps: assessing the college's current position; identifying positioning alternatives; deciding on the best position; and deciding on the strategy needed to achieve the desired position.

First, the college administration must undertake a study of the college's current perceived position in the market in relation to competing colleges. The study identifies how the college is seen by various key segments of the public, including faculties at other schools, potential students, parents of students, high school counselors, and so on. Such a study often yields surprising and even disturbing findings. The comfortable self-image a college may have is often not supported by these outside readings.

After assessing its current perceived position, the college identifies its major positioning alternatives. A small southern denominational college might, for example, (1) continue in its present form, or (2) find a unique message to advertise about itself, or (3) change to a nondenominational institution, or (4) raise its academic level, and so on. In identifying positioning alternatives, the college must take into consideration the major educational and competitive trends and what they imply in the way of specific opportunities for that college.

The third step is to choose the positioning alternative that promises the greatest long-run opportunity for that college, providing that it is realistic. The small southern college may want to achieve an elite status but may lack the resources and leadership to succeed.

The last step in institutional positioning calls for choosing a strategy that will help the college attain the desired market positioning in a reasonable amount of time. If a denominational college decides to shed its denominationalism, it must decide at what rate to proceed, how to announce the change, how to handle alumni who are upset by the decision, and what new student markets to pursue.

The development of a clear institutional position makes the work of the admissions staff much easier. They can explain the college

more effectively through word and print to prospective students. They are less likely to "oversell" and cause subsequent disappointment to new students. Institutional positioning helps not only in student recruitment but also provides synergistic directions for the work the college has to do in the faculty market, donor market, research grants markets, and other areas of market activity.

Portfolio Planning. The student drawing power of a college depends on the number and kinds of programs offered by that institution, just as the business drawing power of a corporation depends on the number of its product lines. A particular college's "portfolio" may consist, for example, of a day undergraduate school, an evening undergraduate school, graduate schools of education, speech, business, and technology, and an adult education program. Each school itself has a subportfolio of departments and courses. The college's overall portfolio also consists of other "consumable" aspects of that institution, such as a distinguished lecture series, concert and drama programs, an active student union, and so on. The richer the portfolio, the greater the drawing power of that college.

However, the concept of a college offering all things to all people is no longer tenable. The concept of a full-service institution seems to be dying in virtually all types of markets. Even General Motors, as large as it is, can no longer think of itself as offering "a car for every pocket, purse and personality." The Massachusetts General Hospital can no longer think of itself as excelling in every type of medical service needed by the sick. It does not make economic sense and it does not make market sense for an institution to try to be all things to all people. The institution achieves efficiency and identity through specialization. The critical importance of institutional positioning is precisely to provide the guidelines to the development of a viable and synergistic program portfolio that creates a distinguished and distinguishable institution.

Many major business firms have recently adopted a format for strategic planning that centers on identifying and "strategizing" for each separate business unit within the firm. A business unit is any part of the business that has a distinct market, faces distinct competition, and calls for distinct resource allocation (for example, a division, a product line, or a brand). Top management reviews the status and prospects for each business unit and decides whether it should be built up, maintained, harvested, or terminated. Planning and resource allocation for each unit is based on these decisions. The same kind of decisive portfolio planning should be undertaken

by colleges.

There are four steps involved in portfolio planning by a college. First, the college must identify its "key business units," those programs around which strategic planning is possible and desirable. The college may use its various schools for this purpose or it may even identify departments or programs within schools.

The second step calls for developing criteria for evaluating the current and future viability of each program. Criteria include the program's quality, cost, intellectual significance, relevance, and synergies with other programs. Imagine a matrix consisting of rows made up of the current programs and columns made up of the key criteria, with each cell showing how well the program rates on a particular criterion.

The third step, the most difficult, is to decide the strategic status of each current program. Too few colleges make a systematic determination of which programs should be built, maintained, harvested, or terminated. A widespread tendency is to try to build all programs by giving them similar across-the-board budget increases. It takes courage for a college president to hold certain programs back against the opposition of faculty and alumni whose programs are affected, while letting other programs grow. Consider the problem faced by New York University regarding the continued operation of its School for Social Work. Facing near-bankruptcy, New York University had to decide to terminate this school after considering its high faculty-student ratio and its inability to market its graduates to an over-supplied market. Other colleges face similar problems.

The last step in portfolio planning is to actively search for exciting and relevant new programs to enrich the school's operations and attractiveness. Too many colleges stick to the "tried-and-true" programs and fail to consider launching new ones. A small liberal arts school should consider adding programs in business, health, or urban affairs if there is a market for these. It should consider launching innovative adult education programs as well. The college marketing process requires not only able management and marketing of current programs, but the successful identification and launching of new programs to meet changing market needs and desires.

Applicant Development. The task of the college admissions office to attract applicants is facilitated by the prior work done by the college in institutional positioning and portfolio planning. The job

of the admissions office is to identify those student markets that will have a natural interest in the college's institutional concept and portfolio, to communicate information and excitement to these students, and to facilitate the student decision process. This is similar to the work of marketing and sales departments in business firms where the emphasis is on prospecting, communication, and facilitation.

The initial task of the admissions office is to produce a large pool of qualified applicants from which the best candidates can be selected, enough of which will matriculate to meet the class-size goal. Developing a large applicant pool involves four steps: Analyzing the market situation; developing applicant objectives and goals for the coming year; developing a core strategy and budget; and carrying out marketing programs.

First, the admissions office analyzes factors affecting the student market in the coming year. The following key questions help in this analysis:

1. What is the expected state of the economy in terms of gross national income, inflation, savings, and consumer mood? This will affect the total number of high school graduates able and willing to go on to college; it will also affect the choices they make between public and private and between two-year and four-year colleges.

2. What is the expected pattern of competition of our competitors for the existing applicant pool? Are our immediate competitors achieving gains at our expense? What types of marketing activities are being undertaken by our competitors?

3. What are the major trends in students' interests that will strengthen or weaken the attractiveness of our college? What can we emphasize about our college that is in tune with emerging aspirations and values?

4. How much awareness of our college, comprehension of its offerings, interest, and desire for admission is there among high school students in whom we are interested?

Based on this appraisal of the market situation, the admissions director, his staff, and the president's office develop a statement of general objectives as well as specific goals regarding the enrollment character and mix that the college wants for the coming year. For example, a large private midwestern college established the following four objectives for its student enrollment program: (1) To achieve an increase in total enrollment and in each school within the college; (2) To attract students of a high quality; (3) To aim for a

diverse rather than homogeneous student body; (4) To maintain a high level of access for minority groups.

In establishing goals an attempt is made to put numerical values on the class sizes and compositions sought for the various schools within the college and for the college as a whole. Targets may be set for specific ratios of men and women, students from certain geographical areas, minority groups, and so on.

Different strategies can be applied to achieving a given set of admissions goals. A student recruitment strategy spells out the target markets to be contacted and the relative emphasis of different marketing tools in reaching the various student markets. One college may focus its recruitment efforts in one part of the country and place heavy emphasis on selective personal contact; another college may choose to reach out to the whole student market and rely heavily on mass media and direct mail.

Whatever the relative importance of the tools in the college's marketing mix, most colleges use all of the tools to some extent. The admissions office must develop tactical programs in the areas of direct mail, advertising, catalogs and brochures, publicity and promotion, high school visits, on-campus programs, off-campus programs, and alumni support programs. The admissions director and his staff must spend some time developing each of these marketing thrusts, including the objectives, timing, and costs of each.

The marketing concept suggests two important things about the development of an effective recruitment marketing mix. First, the marketing concept calls for consumer orientation in designing the marketing programs. This means that component marketing activities are based on a thorough understanding of student needs, desires, and decision processes. For example, advertising should not be developed through armchair brainstorming to find clever appeals, but rather it should be based on an analysis of students' current perceptions, preferences, and decision processes, and the role different messages can play in facilitating some stage in the student decision process.

Second, the marketing concept calls for integrated marketing. This means that the separate marketing tactics must be balanced and orchestrated for maximum and consistent impact on the target audience. There is nothing worse than contradictory messages and signals coming from a given college. The various components of the marketing effort must present a harmonious picture to the marketplace.

Applicant Evaluation and Notification. The objective of applicant development is to produce a large pool of qualified applicants from which the college can select the most able students. The selection process itself is impregnated with marketing considerations. The file of each applicant is reviewed and compared to existing admission criteria to make one of three decisions: admission, delayed admission, or rejection. The admission criteria must be periodically reviewed for their efficacy in producing the desired student class size and mix. A college facing declining enrollments is often tempted to lower the admission criteria to produce short-term gains in enrollment, but this also creates an ultimate and often undesired change in the college's character.

Many applicants request financial aid, especially of private colleges, and this becomes a second step in the admission process. The admissions and financial aid staffs decide what weight to place on student need versus ability, what level of financial aid, if any, should be offered, and what components should make up the financial aid package. Financial aid is equivalent to discriminatory price discounting for the purpose of influencing the number of acceptances or "sales." Admissions and financial aid decisions must be guided by the pursuit of some clear objective, which may be to maximize the size of the incoming class, or to raise the entering class's grade standing by some amount, or to maximize the school's net revenue. In any event, the result of the admissions and financial aid process leads to three final applicant groups: those who are offered admission and financial aid, those who are offered admission only, and those who are rejected.

In the past, most colleges felt that the college marketing process ended with notification. Today, an increasing number of colleges include another marketing step. The admitted applicant faces the difficult task of choosing among the colleges that have accepted him or her, and any additional information and attention received from a particular college may increase the student's preference for that college. The admissions office sends out follow-up letters to accepted students, department chairmen make phone calls to them, and alumni may contact them. Students normally appreciate the extra attention as long as it is not overdone. The admissions office should decide on the appropriate type and amount of follow-up each admitted applicant should receive.

Recruitment Effort Evaluation. The job of the admissions office is not finished when it successfully produces a new freshman class.

Their recruitment effort should be evaluated to learn the weaknesses and strengths of the recruitment program and to spot opportunities for improving it.

All colleges face a total market of graduating high school students of 3.2 million, of which 1.9 million go on to college. College recruitment is, in effect, a funneling process that begins with this total market and ends with a freshman class. Only a small percent of the 1.9 million students may be in the potential market for the services of that particular college. For example, a college that defines as one of its prime markets students who have achieved an SAT-verbal score of 550 or better and whose family earns in excess of $19,000 annually, would find that there are approximately 193,000 students in this category in 1976, or 6 percent of all high school graduates.[3] The college will manage to contact or hear from a certain percentage of its target market. Contacting has been facilitated in recent years by the availability of student identification services such as the Student Search Service sponsored by the College Entrance Examination Board that produce the names of students who meet the college's admission criteria. These students are reached efficiently by direct mail.

Of all the students contacted, only a certain percentage will request catalog and application forms. Of these students, only a certain percentage will send in their applications. The college admits some percent of these applicants. Only a certain percentage of the admitted students will finally enroll in that college, a percentage called the yield ratio or the matriculation ratio. Some of the enrolled students will change their minds before registration day. And finally, only a certain percent of the registered freshmen will finish their first year, and a smaller number will stay with their cohort group through all four years and graduate.

We can see that the admissions process involves a large number of contacts with students to produce the relatively few students who register in September. It is very important to try to improve the ratio of applicants to contacts and the ratio of enrollments to acceptances. To do so, many colleges are becoming extremely interested in contacting nonapplicants, nonenrollees, nonregistrants, and noncontinuing students to find out what factors influenced

3. Humphrey Doermann, "The Future Market for College Education," in this book, page 43.

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their dropping out.[4]

The recruitment performance audit must also study such key costs as the cost per applicant and the cost per matriculant. These costs should be compared with the costs faced by similar universities. These costs might rise if the university undertakes to increase the number or quality of its student applicants without increased efficiency. These costs might fall if the admissions director finds more efficient ways to attract students.

In addition to cost information, recruitment performance evaluation calls for microevaluations of specific marketing activities. For example, advertising would be evaluated on the basis of such indices as the number of inquiries per dollar produced by different ads or direct mail pieces, the percentage of students who remember seeing a certain ad, and so on.

College Improvement Planning. One of the most effective ways to lower the cost of student recruitment is to improve student satisfaction on campus. It is axiomatic that satisfied students are the college's best advertisers. Their influence on the enrollment rate of prospective students in their hometowns is enormous. And students who are disappointed can do a lot of damage through negative word-of-mouth back home. Colleges cannot simply assume that their students are or should be satisfied without actually checking to find out.

The college improvement planning process consists of three major steps: identifying key dimensions of on-campus student satisfaction; evaluating student satisfaction along each dimension; and developing plans for improvement. Key dimensions of on-campus student satisfaction usually include the quality of the academic programs, residential facilities, student activity programs, physical facilities and environment, and work opportunities. A sample of students should be interviewed annually or quarterly to determine their level of satisfaction along each of these dimensions. Plans should then be laid for the improvement of any weak areas that show up, and progress should be monitored. It is amazing how many colleges still resist using teacher evaluation procedures by students and other survey procedures to learn how to improve their "product." No corporation would operate without an audit of customer satisfaction in the way that colleges have for so long.

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4. See, for example, Daniel F. Sullivan, "Using Research in Analyzing Student Markets: A Case Study," in this book, page 86.

Alumni Loyalty Development. The last important component of the college marketing process is alumni loyalty development. There is nothing about the status of alumni that guarantees that they will be strong backers of the college. Those colleges that achieve strong alumni support are fortunate indeed; they raise more money, recruit better students, and enjoy many other benefits.

The main steps to building and maintaining loyal alumni are analyzing the current level of alumni loyalty, setting objectives for the alumni program, developing a core strategy and budget for building alumni loyalty, and carrying out marketing programs of direct mail, alumni magazines and newspapers, on-campus alumni programs, off-campus alumni programs, and school publicity programs. Alumni are usually eager to feel they are worthwhile members of a worthwhile organization, and the school must give thought to cultivating their interest.

Student Decision Process

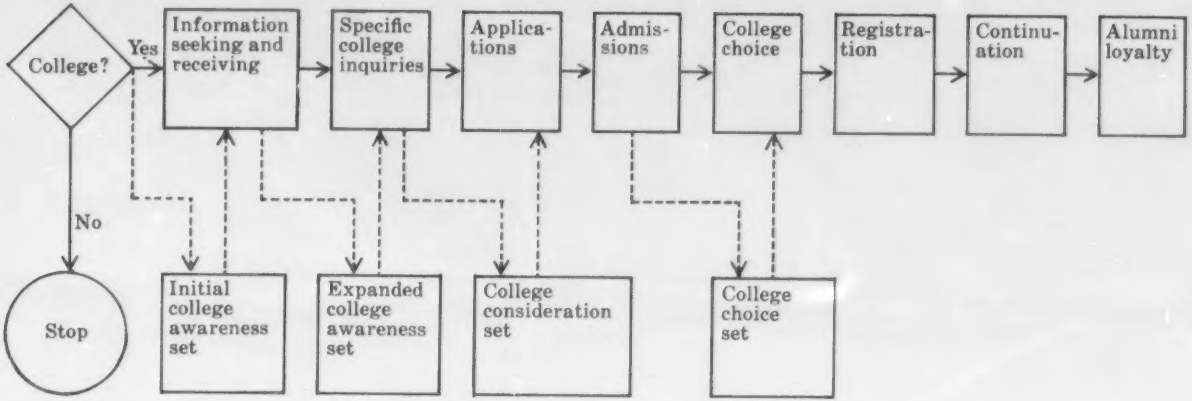
We have examined the marketing work carried on by colleges independent of interpretations of the student decision process in selecting colleges. However, the starting point for college marketing planning should be a thorough understanding of the student decision process. The marketing concept calls for planning the marketing of the "product" on the basis of the target consumers' needs, preferences, and decision processes.

The student decision process can be viewed as consisting of nine steps (Figure 2). The first step in the student decision process is to decide whether or not to attend a college. According to enrollment data from the U.S. Department of Health, Education and Welfare, only 57 percent of high school graduates choose to go to college. There are forces that may increase this ratio over time, and other forces that may decrease it, and this will have a great impact on college marketing.

A student who decides to go to college starts with an initial "college awareness set," a set of colleges whose names the student knows before undertaking any active information search. The student is usually aware of local colleges, colleges that his parents, relatives, and friends have attended, and a few, well-known, elite colleges.

As the student approaches the senior year, he or she begins to seek and be alert to more information about colleges. This alertness expands his or her awareness of colleges into a much larger set,

Figure 2. Student Decision Process



which we call the "expanded college awareness set."

The student begins to send requests to certain colleges for catalogs and applications and may attend the presentations of certain college representatives. This results in the student sending applications to a particular set of colleges that can be labelled the "college consideration set."

The student in turn receives acceptances by certain colleges. These colleges constitute the "college choice set." The student then faces the difficult task of choosing a college from this set, resulting in registration at one of the colleges. Further decision-making reflects itself in the student's decision to continue at that college, or to transfer to another college, or to drop out. Finally, the process culminates with the former student assuming an active, passive, or indifferent relation to the college as an alumnus.

Every college wants to become part of the college awareness set, consideration set, and choice set of desirable students in its potential market. Many of their marketing techniques are efforts to be included in these sets. I will not elaborate on each of the steps in Figure 2, but rather will focus on a few of them from the marketing point of view.

Information Seeking and Receiving. One of the most important processes that college admissions offices must understand is how students acquire information about colleges. The most influential sources of information vary as the student moves from his or her state of initial awareness to one of actively searching. Figure 3 divides the major information sources into four categories: per-

Figure 3. Student Information Sources

Personal sources
Acquaintances attending college
Parents and relatives
Teachers
High School counselors

Public sources
Mass media publicity
Published college guides
College selection advisory agencies

Commercial sources
College admission staff visits
College alumni
College off-campus programs
Direct mail
College catalogs and brochures
College advertising and displays
College audiovisual presentations

Experiential sources
On-campus visits

sonal sources, public sources, commercial sources, and experiential sources. The admissions office should try to utilize all of these sources, but they have different costs and different impacts at different stages of the student information and decision process. Research into the influence potency of high school counselors, parents, college alumni, direct mail, and other information sources in the student's decision will enable the college to improve its allocation of resources to the various marketing activities. Some colleges have opted for concentrating their marketing resources on high school counselors, alumni, or another group, as the key to reaching potential applicants, rather than on the target students themselves.

Final College Choice. The most complex process the student goes through is in making the final choice among colleges that have accepted him or her. The student rates each college's characteristics according to his or her own criteria. The student then applies a certain decision logic that results in making a choice. Making a choice is often followed by some post-decision anxiety ("cognitive dissonance") because the student has gained some advantages while giving up others. Colleges are increasingly aware of the period of cognitive dissonance in decision-making and are taking steps to reinforce a student's favorable decision by contacting him or her during this period.

Marketers have studied consumer choice behavior and have developed models for identifying the choice criteria in any buying situation and for understanding the dynamics of the choice process. There are at least three types of logic that students use to choose a college.

Suppose the student has been accepted by three colleges: A, B, and C (Figure 4). The student is interested in four college criteria: academic level, geographical location, social life, and annual cost. The student rates each college on each criterion. A score of 10 represents the most desirable rating.

The student's choice depends on the decision logic that he brings, consciously or unconsciously, to the decision-making process. According to the "dominance model" of decision logic, a student will choose the college that dominates all of the others on all the criteria. No college in Figure 4, however, shows dominance. According to a second model called the "conjunctive model," the student sets a minimum level of satisfaction that the chosen college must meet for each criterion. Suppose the student wants an academic level of at least 7 and a social life of at least 8. Only college B meets those

Figure 4.

College choice set	*Student's ratings of each college*			
	Academic level	*Geographic location*	*Social life*	*Annual cost*
A	10*	8	7	1
B	8	10	9	3
C	6	7	6	10

* Ten represents the highest rating.

requirements. According to a third model of decision logic, called the "expectancy-value model," the student favors the college whose weighted score is highest. The student assigns different weights to the four criteria and multiplies these weights by the ratings to find the highest-scoring college. This is a compensatory model of the student decision process in that a deficiency of the college for one criterion may be more than compensated for by its strong showing for another criterion.

These consumer models emphasize the value of conducting research into the criteria that college students apply in rating colleges, into how students form their beliefs about the college's rating on each criterion, and into how students process the information in making a final decision. Given that students differ in the criteria they use to rate colleges, in their opinions of colleges, and in the systems of logic they use to decide which college to attend, it may be possible to distinguish student market segments according to these differences and to treat each differently. Four broad strategies for influencing student choice are suggested:

1. Programs to influence the inclusion or exclusion of specific criteria as factors in choosing a college. For example, a college with great job-placement success may want to promote the quality of job-placement programs as a criterion in choosing a college.

2. Programs to influence the perceived relative importance of different criteria in choosing a college. For example, a college with high-quality academic programs but limited social life might want to emphasize the greater importance of academic quality in affecting the student's future.

3. Programs to influence the beliefs commonly held about a particular college's rating on a particular criterion. For example, a college that is *perceived* to have mediocre academic programs but believes itself to have higher quality academic programs may formulate a communication program to correct this.

4. Programs to influence students to prefer one type of logic to another in arriving at their decision. For example, a college might argue that students should not simply be satisfied that colleges have certain attributes but should give added credit for the degree to which each attribute is present.

The college marketing process must be grounded in a thorough analysis of what attributes students are looking for in a college, how they perceive various colleges in terms of these attributes, and how they trade off various attributes to arrive at their final decision.

Summary

In summary, the following are probably the most important points to keep in mind when applying marketing techniques to college admissions.

1. The work of the college admissions office should not be confused with the whole of the college marketing process. Such components as institutional positioning, portfolio planning, and college improvement planning (responsibilities of the college's administration) play as large or even a larger role. At the same time, the college admissions office plays the major role in actualizing the potential demand for admission to the college. Its work consists of applicant pool development, applicant evaluation, and recruitment effort evaluation.

2. The key to improving the effectiveness of college admissions work lies in tracking over time statistics showing yield and cost ratios and in seeking to improve their levels over time.

3. A major function of the college admissions director is to educate other parties in the college regarding the imperatives of the college marketing process.

4. The college marketing process should be anchored in a thorough understanding of the student decision process.

5. Effective college marketing must be rooted in practicing the marketing concept: consumer orientation, integrated marketing, and consumer satisfaction.

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The Positioning Era: A Marketing Strategy for College Admissions in the 1980s

by Howard Geltzer and Al Ries

If colleges and universities were mass-produced consumer products, developing a marketing approach would be a relatively simple task. Analyses would indicate that the market is declining, costs are rising, and other alternatives to the product have been introduced. The marketing experts would undoubtedly commandeer all possible marketing resources and would probably engineer new ways to expand the market, usually through modification of the product.

When peanut butter was first introduced, it was marketed as a gourmet food product. And when it faced failure, the fate of 75 to 90 percent of all new products introduced each year, the marketing experts reintroduced peanut butter as a snack for everyone. The product was repackaged, readvertised, and redirected to a mass market.

A few years ago, Johnson & Johnson looked at a problem that faces colleges today—the declining birthrate—and pondered the fate of one of their most successful products, baby shampoo. Their experts simply created a rationale for a new market, adults, by promoting the shampoo as "gentle enough to use every day." The result has been a resurgence of sales of the product to new heights.

The problems of colleges and universities are certainly much more complex than peanut butter or baby shampoo, because the options available are fewer. Colleges are limited to their service function and do not have staff trained in marketing. In addition, the concept of marketing has been, and we suspect still is, alien and suspect in the college community. We have discovered few colleges or universities that have translated the need for sophisticated marketing thinking into the necessary action required to tackle the new problem of attracting qualified applicants. And yet there is a remarkable abundance of statistics and up-to-date research—far more advanced than for most products and services—available to colleges to assist in marketing. There is also an effective definition and isolation of the market, and there exists the capability to generate promotional and informational materials describing every aspect of every college in incredible detail.

Hanging overhead like a growing storm cloud is the intelligence

that the number of high school graduates will continue to decline and that the available graduates may select alternatives other than, say, four-year colleges. To compound the crisis, there is the agonizing pincer of rising tuition and related costs on the one hand, and a decline in available financial resources from parents and funding organizations on the other.

To dramatize these problems, articles appear in the general press with headlines like:

"Private colleges in peril"

"Small private colleges create group to win sympathy and public funds"

"Princeton, like other universities, is prodding its alumni harder for money as funding falls"

"Education's big boom is ending, but studies to get more diverse – that cloudy crystal ball"

"Rise in remedial work taxing colleges"

and even, incredibly, a cover story:

"Harvard on the way down"

There is no question that the urgency of the problem has been recognized. What does not exist is strategic marketing thinking or the type of marketing strategy essential to deal with the marketing problem that has been defined.

The word "positioning" may not be foreign to you. You may have seen it used and misused countless times in papers and articles discussing marketing. We will discuss positioning as a marketing strategy and communications strategy, relating it to areas in business where it has been implemented and indicate how it can be applied by colleges and universities to help solve their enrollment problems.

Positioning

Positioning can best be explained by asking you to ask yourself some simple questions: Who was the first person to fly solo across the North Atlantic? And don't think it couldn't be Charles Lindbergh, because it was. Now, ask yourself, who was the *second* person to fly solo across the North Atlantic. Not so easy to answer.

What is the name of the highest mountain in the world? Mount Everest in the Himalayas, right? What is the name of the second highest mountain?

Who was the first person you dated in college? What about the second? The first person, the first mountain, the first company, the

first college to occupy the position in the prospect's mind is going to be awfully hard to dislodge: IBM in computers, Hertz in rental cars, Harvard and Yale in law schools, Northwestern in journalism.

If your name is not IBM or Hertz or Harvard, you must find a way to position your product or school in relation to the leader, the one that exists in the mind first. This is the essence of positioning, a concept that has rapidly become preeminent in marketing.

Positioning had its formal beginning back in 1969 when Jack Trout, president of the advertising agency Ries Cappiello Colwell, wrote in an article in *Industrial Marketing* a remarkably prophetic prediction: "A company has no hope to make progress head-on against the position that IBM has established."

How *do* you market against a company like IBM? As the article pointed out, a second front must be opened. Because RCA is a leader in communications, "If RCA positioned a computer line that related to their business in communications, they could take advantage of their own position."

Trout's article raised a few eyebrows at the time. How could anyone say that powerful, multibillion-dollar companies could not succeed in the computer business if they so desired? Nonetheless, RCA did not succeed, and its incredible story unfolded in the business press: "RCA fires a broadside at No. 1," said the headline of an article in *Business Week*; "RCA goes head to head with IBM," said the headline of a news item in *Fortune*; and "RCA computer push is head-on slash at IBM," said the headline of a story in *Advertising Age*. Less than a year later, the roof fell in. "The 250-million-dollar disaster that hit RCA," said the headline of a story in *Business Week*. That's a lot of money.

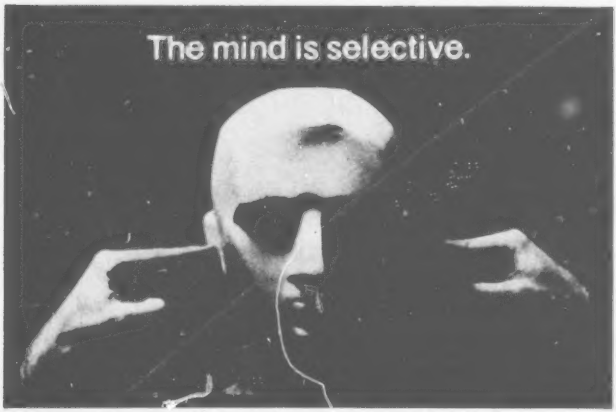
Nineteen seventy-one was a bad year for more than one computer manufacturer. Not only RCA, but also General Electric threw in the computer towel. Why did they not succeed? Maybe they did not understand the natural consequences of attacking the leader where it is strong rather than weak.

Subsequently, the positioning concept began to attract attention. *The Wall Street Journal* ran a front-page story on positioning in advertising, saying "It's part of the latest trend on Madison Avenue." *The New York Times* called it "The new password in marketing." Conferences on positioning have been presented in Brazil, the Netherlands, England, Ireland, and Norway. We average a speech a week on the subject, and more than 50,000 people have requested a booklet that is a reprint of articles on the subject.

What is this thing called "positioning"? Why has it become so big in product marketing, and will it succeed in college marketing? One reason why we reply a resounding "yes" to this last question is that we have become an overcommunicated society. There are too many products, too many companies, too many colleges and universities—in general, too much marketing noise.

Over $100 a year per man, woman, and child is spent on advertising to bombard the mind of the U.S. consumer each year. We estimate that a comparable amount of money is spent by colleges and universities on eligible high school seniors.

Penetrating Prospects' Minds. Although we will not question for now the college's financial ability to turn out advertising material, there is some question about your consumers' mental ability to take it all in. And make no mistake about it, the mind is the battleground. The marketing war takes place between six inches of gray matter. The battle is rough, with no holds barred and no quarter given.



To better understand what each college is up against, consider the mind as a memory bank. Like a memory bank, the mind has a slot or a position for each bit of information it retains. The mind is selective, and as a defense mechanism against the volume of today's communications, the mind screens and rejects most of the information offered it. In general, the mind accepts only that new information that relates to its prior knowledge or experience. It filters out everything else.

For example, when RCA developed marketing programs that

said, "RCA computers are best," the prospect said, "No, IBM computers are best." The computer "position" in the minds of most people is filled by IBM. To obtain a favorable position, the competitive manufacturer must either dislodge IBM (an impossible task) or somehow relate the company to IBM's position.

Said another way, the best college or the one with the most beautiful campus or the finest science department is already occupied in your prospect's mind. And, if there is any one statement that can summarize the hundreds of brochures and information about colleges that we have reviewed, it is that they are all saying the same thing: we are outstanding; our campus is beautiful; our science department is terrific.

Evolution of Marketing Strategy. Until recently, it was acceptable for all colleges to claim many attributes. In most respects, we relate this past college marketing environment to the product era in consumer marketing, which existed in the 1950s. Those were the good old days when the "better" mousetrap and enough money to promote it were all that were needed. Like consumer marketing in the 1950s, colleges and universities are currently operating as though in the product era. Their attention is focused only on the features and attributes of their own school.

When technology and competition began to eliminate the unique features and competitive advantages of one product over another in business in the late fifties, the product era ended. And now that the "seller's market" in postsecondary education has ended, colleges must develop communication strategy more effective than simply relating the attributes of their institutions.

Consumer marketing in the 1960s went through the image era. Marketing strategy focused on reputation or image rather than on the product or any of its specific features. The architect of this era was David Ogilvy, who said, "every advertisement (or brochure, mailing piece, etc.) is a long-term investment in the image of a brand." And he proved the validity of his ideas with programs for Hathaway shirts, Rolls-Royce, Schweppes, and others.

The end of the image era came with an avalanche of corporate or institutional image programs. As every company tried to establish a reputation for itself, the noise level became so high that relatively few companies succeeded in being heard.

For the most part, colleges have avoided the image phase of marketing. It was the needs of the marketplace, punctuated by the problems brought by the recession, that brought business to where

it is today and have brought education to the threshold of the positioning era. This is an era that recognizes both the importance of the product and the importance of the image. But more than anything else, it stresses the need to create a "position" in the prospect's mind.

In creating a position, your competitor's image is as important as your own. Sometimes, it is more important.

Examples of Positioning Success and Failure. We would like to relate a few examples of positioning success and failure and to discuss how effective positioning can be developed.

The famous Avis marketing program was a classic case of establishing the "against" position, a position against the leader. To understand why this approach was so successful, let us look into the mind of the prospect. For each category or need, there seems to be a product ladder. On each rung is a brand name, in this case, Hertz, Avis, and National at the top. Hertz was already foremost in prospects' minds, so Avis acknowledged this fact and turned their own position as number two into an attractive one to prospective customers: Because we're number two, "we try harder."

Another way to get your message through is by accepting a position that no one else wants. For example, Volkswagen was able to establish the ugly position by default. The strength of this position is that it communicates reliability in a powerful way. "The 1970 VW will stay ugly longer" acknowledges the negative, and when you admit the negative, your prospect is inclined to give you the positive.

Another classic example of positioning strategy is the "uncola" position established by Seven-Up. The brilliance of this idea can only be appreciated when you realize that 63 percent of the soft drinks consumed in the U.S. are cola drinks. By linking its product to cola products, Seven-Up has established itself as an automatic alternative to Coke and Pepsi. No product features, no customer benefits, no company image – only the mental leverage factor of one word, "uncola." Yet, this word more than doubled Seven-Up sales. Today it is the third largest company in the soft-drink industry.

By achieving a clear position that related to what was already in the mind, Avis and Seven-Up were able to attract prospects they never would have because of lack of clear focus.

One alternative to good positioning is the "everybody trap," which judging from their information material, has caught many colleges and universities today. American Motors fell into the

everybody trap when it tried to appeal to a wide range of car buyers in marketing the Hornet. But the buyer who wanted to spend $3500 for a car did not buy the Hornet because that buyer did not want his or her friends and associates thinking it was a $1900 car. And the buyer who wanted to spend $1900 did not want to buy a $3500 car stripped of $1600 worth of accessories. If you try to appeal to everyone, you wind up appealing to no one.

An even more appropriate example of the everybody trap is the case of Protein 21 shampoo. Several years ago, the Mennen Company introduced a combination shampoo and conditioner called Protein 21, which rapidly carved out a 13-percent share of the shampoo market. Then Mennen was lured into extending their product line. In rapid succession, the company introduced Protein 21 hairspray in regular and extra hold, scented and unscented, Protein 21 conditioner in two formulas, and Protein 21 concentrate. To make sure that nobody can keep their products straight, Mennen also markets the Protein 29 line for men. No wonder Protein 21's share of the shampoo market has fallen from 13 percent to 11 to 9 to 7 to 5½ percent. And the decline is bound to continue.

Requirements of Successful Positioning

Consistency. More than anything else, successful positioning requires consistency. You must keep at it, year after year. So often after a company or institution has executed brilliant marketing strategy, the first impulse is to change it. Perhaps it is the lust of the conqueror after new conquests, or more likely, the marketing expert is simply bored working on the same strategy day after day. (The Anacin marketing strategists have stuck with "fights headaches three ways" strategy for almost four decades with great success, while their competitors switch from an animated speedy character, to spicy meatballs, to product line extensions.)

Organizations are susceptible to the "forgot what made them successful" trap. The "Avis is only No. 2 in rent-a-cars" program turned Avis from a loser into a winner. The "Avis is going to be No. 1" program does just the opposite. The older program not only related number two, Avis, to the leader, Hertz, it also exploited the natural sympathy people have for the underdog. The newer campaign is just conventional brag-and-boast advertising.

Another company that seems to have forgotten its successful position is Volkswagen. Their "think small" theme represents probably the most famous advertisement of the sixties. But the pro-

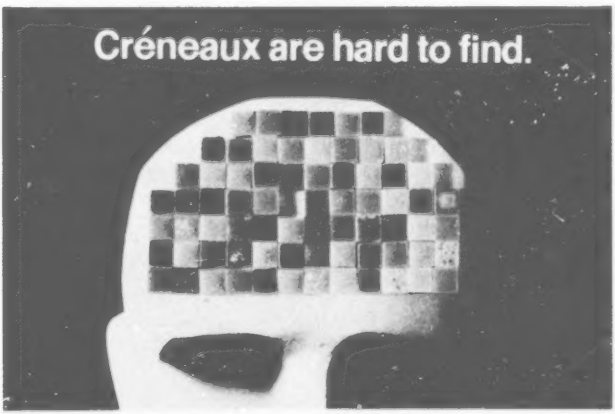
gram that announced a new kind of Volkswagen, a big Volkswagen, is confusing to buyers. Does the company want us to think small or think big?

What does your university want its prospects to think about it? That its program is the most well-rounded? That its campus is the most beautiful? That its residence facilities are the most comfortable? That the social life is the most extensive? That its alumni have attained the greatest success in their fields? That the student can develop his or her own curriculum? The fact is that virtually every institution would like every prospect to think all of these things and more, and this desire is reflected in their communications. Is it any wonder that prospects are confused? Or that they tune out your message because it looks and sounds like everyone else's?

Research. The French have a marketing expression that sums up the concept of positioning. *Cherchez le créneau.* Look for the hole. Like IBM, the first company or college to build a strong position has an enormous advantage. You have to find a position that nobody else owns. Realize that it is the first company or school to build the mental position that has the upper hand, not the first one to make the product. IBM did not invent the computer, Sperry Rand did. But IBM was the first to take that position in the prospect's mind.

Today, however, a would-be leader, is confronted with the fact that créneaux are getting harder and harder to find.

Did you know that the average supermarket in the United States has some 10,000 individual products or brands on display? And that



there are nearly as many postsecondary institutions? Compare that with the fact that the average high school graduate has a speaking vocabulary of less than 8,000 words. With a plethora of colleges and products, how does a company or college find an effective positioning approach?

The best way to begin is with research. Research is the tool with which you chart a positioning map of the prospect's mind. When we have a map of the mind, what are we looking for? We are looking for a hole, a créneau, that does not belong to someone else. To discover this opening, we utilize many well-established research techniques such as semantic differential and perceptual mapping. The research is neither esoteric nor inconsiderate of your time and resources. There is no reason, in fact, why it cannot be accomplished by your own organization.

In conducting positioning research, we violate one old research rule and start with some preconceived ideas. In other words, we work out one or more positioning strategies before we start the research.

Borrowing this idea from the oil industry, we sink test bores in the mind of the prospect. The oil analogy is apropos. If you want to find oil, you do not drill holes all over the landscape. You get out your geological maps and do your homework. Then, if the conditions are right, you sink a test bore and find out if what is down there matches your preconceived ideas. If it does, you get out your wallet and start to drill.

The following is an example of this type of research conducted by Ries Cappiello Colwell, advertising agency, that in our opinion can be adapted for any college and university with new and productive results in terms of marketing and communications strategy.

This example of positioning research concerns commercial banking in the most competitive market of all, New York City. The research was conducted to explore the possibility of a new or alternate strategy for Chase Manhattan Bank. Our preconceived idea based on the marketplace was that fast service would be the most important available position to secure.

Using positioning research, the agency tried to find out first what was already in the mind of the target bank prospect.

In this study, we selected the five largest banks in the metropolitan area and we decided to "grade" them on friendliness, variety of services, speed of service, convenience of branch locations, and size of capital. We asked prospective banking customers to rank the

strength of each attribute for each bank on a scale of zero to 100. Four of these represent fairly standard banking qualities. The table shows the ratings received by the five banks in each of the five selected categories. This is not conventional research. We were not looking for absolute strength or weakness. Nor were we trying to profile Chase Manhattan Bank. What we were looking for was an available position for Chase Manhattan Bank in the prospect's mind. Unquestionably, with the geographic diversity of your prospective students, it will not be possible to include in your own research every single institution that competes with your college.

The next step in positioning research is to consider how the banks compare in each of the five categories.

If you live in New York, you probably know that one bank has been communicating the friendliness idea for five years. "You have a friend at Chase," said their outdoor signs, print ads, and television ads. You would think that Chase Manhattan has preempted the friendly position, but this research indicated they were in fourth place. Over the years, Chase Manhattan invested millions in promoting itself as the friendly bank, with its theme, "You have a friend at Chase Manhattan." What went wrong and ultimately forced a change? It is not enough for an organization to communicate an idea. The idea must be believed by the prospect. Without proof of friendliness (a difficult, if not impossible, task), the leader tends to inherit this idea by having more friendly people waiting on customers.

	First National City Bank	*Bankers Trust Company*	*Chase Manhattan Bank*	*Chemical Bank*	*Manufacturers Hanover Trust Co.*
Friendliness. .	38	21	25	26	31
Variety of services . . .	63	40	46	37	38
Speed of service . . .	20	25	29	22	13
Convenience of branch locations . .	37	20	27	28	17
Size of capital. . . .	69	36	59	42	39

The leader is usually ahead in all areas. First National City Bank, now called Citibank, leads the others in friendliness, variety of service, convenience of branch locations, and size of capital, but not in speed of service. In speed of service, Chase Manhattan is the leader, and First National is buried in fourth place.

Fast service, as it happens, was also our preconceived idea of the best available position. Interestingly, this concept could benefit either Chase or Citibank. It would give Chase a viable strategy to use against the leader, Citibank. First National City Bank, on the other hand, could use this speed of service to block their major competitor from the only viable strategy available to them.

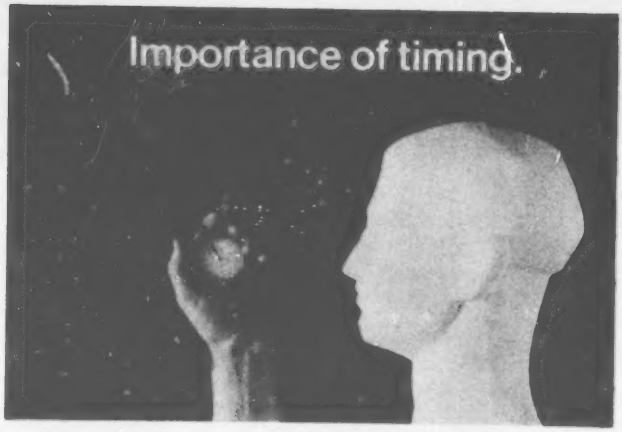
The banking business, like other industries, usually revolves around finding an effective strategy against the leader. What is interesting, however, is that positioning research usually does turn up one or more viable options for an underdog. And those options are usually based on the leader's weakness rather than the underdog's strength. This is why it is just as important to measure the positions of your competitors as well as your own in the minds of your prospects.

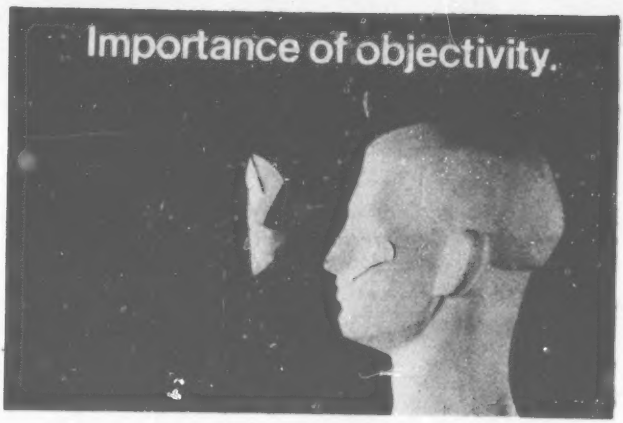
There is no reason why a college or university could not benefit from a similarly structured positioning research survey. Your research techniques and analysis of your university are far more sophisticated than comparable business organizations. You probably know more about your institution than most businesses know about their products. And, unquestionably, you have some good preconceived ideas about the strengths of your school. If you are ready to try a strategy other than being everything to everybody, you can begin by testing one or more of your preconceived ideas.

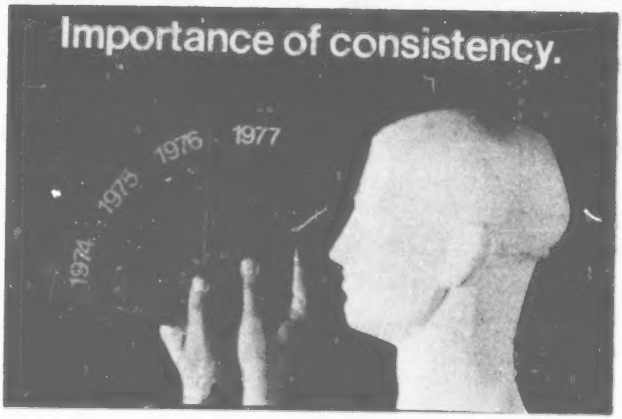
Include the attributes that you know are important to your prospects. The ones that we notice emphasized in the college admissions literature that we have reviewed include quality of residences, quality of placement and career counseling program, campus appearance, location, faculty credentials, and student satisfaction. Then include your own preconceived ideas.

Developing Strategy. Research is only part of the positioning job. After you have the research completed, you must then develop the best strategy based on the research.

If you are now motivated to apply positioning thinking to your own situation, there are three questions you can ask yourself. First, what position, if any, do you already own in the prospect's mind? Before starting any program, it is important to prepare a


Importance of timing.


Importance of objectivity.


Importance of consistency.
1974
1975
1976
1977

positioning map that outlines in detail who the prospect is and what he or she knows not only about your school, but your prime competition as well.

The second question you should ask is what position do you want to own? You want to choose the best position from a long-term point of view.

The third question is what institutions must be outgunned if you are to establish that position? Find a way to *reposition* your competition. For example, Volkswagen not only developed the ugly position, it repositioned its U.S. competitors as gas guzzlers.

Marketing battles are today more and more like war. As a matter of fact, the best book on marketing ever written may have been *On War* by Clausewitz. In this masterpiece of military strategy, Clausewitz outlines some strategic factors that are just as important today as they were in Napoleon's time.

The first important factor is timing. We are the first generation of management people to face what Alvin Toffler called "future shock": If we do not become future-oriented, we will not survive. Sensing the future in the present can be very profitable for the astute marketing person. It used to be that we had to wait around for years to see the effect of a new marketing idea. You will not have to wait very long for anything any more. Modern technology and communication have speeded up the process. New ideas can be put to use and succeed almost instantaneously.

Another factor as important in marketing as it is in war is objectivity. You must be able to see yourself as you are, not as you want to be. To be successful in today's marketplace, you must be brutally frank with yourself. You must try to eliminate all ego from the decision-making process. One of the critical aspects of positioning is being able to evaluate objectively your university and how you are viewed by your students and prospective students.

The third factor important to success in marketing is consistency. You have got to reinforce your position month after month, year after year.

In the 1980s, a college or university must think more strategically than it ever did before. Changing the direction of a school is like trying to turn an aircraft carrier. It takes a mile before anything happens. And if it was a wrong turn, getting back on course takes even longer.

Today, strategy and timing are the Himalayas. Everything else is the Catskills.

Using Research in Analyzing Student Markets: A Case Study

by Daniel F. Sullivan and Larry H. Litten

The message of other papers in this volume is that theories of marketing and techniques of market analysis have something important to contribute as institutions of higher education plan ways to cope with the new admissions and enrollment pressures of the 1970s. A key to successful marketing, we are told, is to obtain accurate information about a whole host of variables as they pertain to a particular institution. In this paper we illustrate by means of a case study how some of the information necessary for good admissions and enrollment planning may be obtained through systematic research.

It is natural to think that "market research" is something done only by highly trained specialists who use complex analytical techniques and charge a high fee. Although large and/or wealthy universities might be able to buy such research or to staff an in-house research facility, surely no small and/or financially pressed institution could afford to do so. It is true that market research can be both highly sophisticated and expensive, and perhaps the best research has both of those characteristics; but high-quality research, suitable for most needs, can be done using fairly simple techniques at relatively low cost. The research discussed in this paper was not expensive, and the results have been beneficial to the admissions and recruitment planning process.

The research mentioned here was conducted by the authors during 1972-1975 as part of an ongoing evaluation of the admissions and recruitment process at Carleton College, a private, coeducational, liberal arts college in Northfield, Minnesota, a small town 40 miles south of Minneapolis–St. Paul. The college enrolls approximately 1,700 students. The research was not designed with concepts of marketing theory or market analysis in mind, though it is

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Prepared under a grant to Carleton College from the Northwest Area Foundation. This research could not have been done without the cooperation, support, and interest of Paul M. Garman, Director of Admissions at Carleton. It was to his expressed needs and concerns that the research was tailored. In addition, we were ably assisted at key points by several Carleton students: Ian Evison, Larnzell Martin, V. Michael Young, and Linda Metz.

retrospectively clear that every analysis that was done may be subsumed neatly under one or another category of Kotler's "systematic marketing audit."[1] It is also clear that if we had had such a marketing audit in mind while designing the research, some additional concerns would have been addressed. Indeed, it is the comprehensive picture presented by marketing theory and marketing concepts that will perhaps be of most use to colleges just beginning research in this area.

This paper is not a comprehensive prescription for conducting a good marketing audit. Rather, it presents a series of highlights from what we now see was a partial marketing audit for a particular college. Each institution beginning its own audit will want to tailor the research to its own particular concerns and to locally available research skills. Even so, there are some general principles that should be kept in mind by any college.

General Principles

The first principle is to determine very carefully in advance what questions about recruitment need answering and whether the proposed research will provide those answers. Such a caution seems obvious, but let us explore it a bit further. The general questions to be addressed by the Carleton admissions and recruitment research were two: In what ways is the market of potential students segmented?[2] And what aspects of the college's recruitment effort are most and least effective? If Carleton's market turned out to have several very different segments not already known and allowed for, a much more differentiated marketing approach would have to be developed. And in the case of the second question, if certain modes of recruitment were shown to be ineffective for Carleton's market, resources could be shifted into more productive channels. Deciding on these goals in advance resulted in both a narrowing and a sharpening of our research design.

A second principle that should guide any marketing audit is that in admissions and recruitment research an effort should always be

1. Philip Kotler, *Marketing for Nonprofit Organizations*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1975, pp. 56-75.

2. A market is considered to be segmented when identifiable subsets of it make systematic decisions to purchase according to different criteria. For example, we will see that prospective students from the East make their decision about Carleton taking different factors into account from those important to prospective students from the Midwest.

made to evaluate the impact of each factor on the "bottom line." Chapman and Van Horn[3] talk of an "admissions funnel," in which the total potential student population is gradually winnowed down to the relatively small proportion that eventually enrolls at a particular institution. It is important to know, for each stage in the process, what affects the probability that a student will move one stage closer to enrollment. Variations in student attributes, however interesting on other grounds, are only important here as they affect the probability of a student moving from one stage to the next. The same is true of recruitment actions taken by a college: the impact of present and possible future recruitment activities on the probability of a student moving from one stage to the next is what needs to be assessed.

For example, concerned about a slow decline over several years in its "yield" (defined here as the percentage of accepted students who actually enroll), a college decided to survey its incoming freshmen to obtain their evaluations of the recruitment process they had experienced. Students were asked to comment on all phases of the recruitment process, and the results showed that some aspects were uniformly highly rated whereas others received mixed or medium to mediocre reviews. In particular, the college's recruitment literature received a very mixed response. Some students thought the literature to be excellent, but an equal proportion found it barely adequate to their needs. What does this mean? The problem here is, of course, that only enrollees were studied. If equivalent data were available on accepted students who declined to enroll, it might be possible to determine whether attitudes of applicants toward the recruitment literature made a difference in yield. In a study conducted the next year, which included students who declined to enroll, it was discovered that students who were highly favorable toward the college's literature were no more likely to enroll than those who found it unappealing. To conclude on the basis of the first study of enrollees that the college's literature had an adverse effect on its yield would have been an error.

Research of the type suggested requires a familiarity with at least some aspects of multivariate causal analysis. Sufficient expertise in this area is almost always available within the social sci-

3. Randall G. Chapman and Richard L. Van Horn, "Marketing Approaches to University Admissions Planning." Unpublished paper, School of Business, Queens University, Kingston, Ontario, Canada, 1974, 20 pp.

ence faculty, even at small colleges. It is important always to be able to distinguish real effects from spurious ones and to find where relationships hold more and less strongly. Our analyses in this paper will illustrate these points.

Finally, some aspects of the marketing audit should become part of an ongoing, annual research effort. After the first year the research being discussed here becomes much less expensive. The availability of trend data makes it easy to discover changes in the state of a college's markets. In addition, the impact of changes in recruitment policies and activities can be assessed.

To illustrate at least one way in which a marketing audit based on these principles can be applied in practice, we now turn to a consideration of the Carleton admissions and recruitment research.

Nonapplicant Study

Each year Carleton's admissions office has contact with nearly 7,000 prospective applicants. Although each of these prospects has sufficient contact with the admissions process to warrant a file, over 80 percent never submit an application. It was decided that a sample of these people should be surveyed to find out what they were like, where they chose to go to college, what they knew and did not know about Carleton, how they knew it, and why they did not apply. The focus of this study corresponds to Kotler's "marketing environment review,"[4] the first stage in a general marketing audit.

In May of 1974 questionnaires were sent to 1,875 persons with whom the admissions office had had contact during 1973-74 but who did not submit an application. This number is approximately 30 percent of the more than 5,500 admissions contacts that did not result in an application. The nonapplicants selected for inclusion in the study were chosen using a random sampling procedure to insure the representativeness of the sample.

Usable responses were received from 800 or 43 percent of the 1,875 people to whom questionnaires were sent, but the analyses presented in this paper will be based on the much smaller number of 559 or 30 percent. Of the total of 800 respondents, 64 said that they had not applied to college, and so they were excluded from the analysis. An additional 124 were looking for a college or university with a major or a program not offered at Carleton, and so they were also excluded from the analysis; this group had made a wise choice

4. Kotler, *op. cit.*, p. 57.

and could not really be thought of as part of Carleton's potential applicant pool. Twenty-six persons were either inquiring about transfer possibilities, and hence were not potential freshmen, or were SAM (Single Application Method, whereby all Associated Colleges of the Midwest may be applied to in one application and for one fee) applicants whose applications would have come to Carleton only if they had been rejected at their higher choices, making them technically applicants to Carleton. These 26 were also excluded from the group analyzed. These exclusions leave 586 total cases for analysis, but at the time that the report on which this paper is based had to be written only 559 had been coded, keypunched, and stored on Carleton's computer. Thus, this paper is based on 559 responses.

Without an extensive nonrespondent follow-up survey, the degree to which the group of usable questionnaires that were returned is representative of the sample cannot be accurately determined. A 43-percent return is a lower percentage than is desirable for surveys of this type. However, since region of residence and sex are known for the whole sample of 1,875 nonapplicants, the respondent group can be compared with the entire sample in those respects, and it turns out that the region and sex distributions for respondents and for the whole sample are virtually identical. If there is a response bias in the data, it is probably that nonapplicants more interested in Carleton were more likely to respond. If such a bias exists it is a useful one, since these more interested students are like the ones that Carleton probably has the greatest chance of influencing to apply in future years.

Analysis. Clearly, any college seeking to increase the number of inquiring students who eventually apply would want to know if these students, as a group, are desirable candidates for admission. As one indication of their relative desirability, the nonapplicants' SAT scores and high school class rank were compared to the scores and class rank of applicants who were accepted at Carleton for 1974-75. A total of 985 candidates were accepted for admission in the fall 1974, but the number of cases analyzed here is 896. This represents the 91 percent of the accepted students who completed a questionnaire as part of the yield study, to be described later. Since this data file was more accessible than the full file of acceptances, and since it will be used throughout for comparisons of items not available elsewhere, it is also used here. It is slightly biased in favor of those enrolling at Carleton, but the population

parameters (age, sex, SAT scores, and so forth) are identical to those for the entire group of accepted applicants. As Tables 1 and 2 show, the SAT scores and class ranks of nonapplicants as a group were similar to those of students Carleton accepted. This nonapplicant pool was, therefore, a highly attractive group of potential applicants, at least as indicated by standardized test scores and high school academic performance.

But could the nonapplicants afford Carleton? A check of responses to a question about parents' annual income indicated that the median parental income of these nonapplicants was very close to that of accepted students. They were, therefore, as a group at

Table 1. SAT Score Distributions for Accepted Students and for Nonapplicants

Score intervals	SAT-*verbal sections*		SAT-*mathematical sections*	
	Accepted	*Non-applicants*	*Accepted*	*Non-applicants*
200-500	10%	10%	7%	8%
510-550	12	9	7	9
560-600	19	20	16	15
610-650	24	24	19	15
660-700	22	23	22	22
710-800	13	14	29	31
	100% (859)*	100% (458)*	100% (859)*	100% (458)*
	Median score = 630	Median score = 620	Median score = 660	Median score = 660

* Decreases in the numbers of students are due to missing information.

Table 2. Percentile Class Ranks for Accepted Students and for Nonapplicants

Class rank	*Accepted*	*Non-applicants*
Top 1%	17%	15%
Top 2%-5%	32	32
Top 6%-10%	22	19
Bottom 90%	29	34
	100% (831)*	100% (491)*

* Decreases in the numbers of students are due to missing information.

least as able to pay for a Carleton education as the students who were accepted.

Perhaps they were, after all, not interested in attending a liberal arts college and chose instead to attend a large university or some other type of institution radically different from Carleton. The data in Table 3 suggest a different answer. By and large, nonapplicants went to the same types of schools as Carleton's accepted students who chose to go elsewhere, and over half chose to attend another liberal arts college.[5] So far the data continue to indicate that this group of nonapplicants was a highly desirable pool from Carleton's point of view.

Table 3. Percentages Attending Colleges Other Than Carleton (by College Type) for Accepted Students Who Went Elsewhere and for Nonapplicants

	Accepted, went elsewhere	*Non-applicants*	*Combined*
Public universities	16%	23%	20%
Private universities	21	19	20
Little Three, Seven Sisters, and Ivy League	26	15	19
ACM schools*	10	13	12
Select small colleges†	16	7	10
Other private colleges	4	10	8
Some top competition‡	5	8	7
Minnesota private colleges	2	5	4
	100% (369)	100% (545)	100% (914)

* Associated Colleges of the Midwest: Beloit College, Carleton College, Coe College, Colorado College, Cornell College, Grinnell College, Knox College, Lawrence University, Macalester College, Monmouth College, Ripon College, and St. Olaf College.

† Antioch College, Bowdoin College, Hampshire College, Haverford College, Middlebury College, Oblerlin College, Pomona College, Reed College, and Swarthmore College.

‡ A group of 19 schools, including Bates College, Denison University, Earlham College, Kalamazoo College, Lake Forest College, and Tufts University.

5. The last five categories in Table 3 total 43 percent, and 15 percent more chose to attend a school from among the Little Three, Seven Sisters, and Ivy League colleges. At least the majority of this latter group can certainly be said to be attending libera! arts colleges.

Another concern of the nonapplicant study was to find out something about the image these prospective students had of Carleton. Accordingly, a whole battery of potential characterizations of a college were included in the nonapplicant questionnaire, and students were asked to agree or disagree with whether each applied to Carleton. They were also asked whether each characterization applied to the college they had chosen to attend and to their "ideal" college. The results from these questions were instructive, and we can summarize them here.[6]

In general, nonapplicants knew much less about Carleton than they claimed to know about the school they were attending, and such a result is not surprising. Furthermore, with few exceptions, when they were able to give an opinion, they characterized Carleton and their "ideal" college in the same way.

Also, in only a small number of areas was there disagreement about what their ideal college would be like. The nonapplicants disagreed about the desirability of a relatively active versus relatively sedate social life. They said that they knew very little about the social life at Carleton, of course, but indicated they believed that some students are wild and some sedate. They also disagreed about the importance of intercollegiate athletics in an ideal college experience. Again, 56 percent did not know what Carleton is like in this respect, but most of those who had an opinion about this aspect of Carleton perceived, correctly, the lack of emphasis on athletics. These nonapplicants disagreed about how much study and class preparation would be part of their ideal college life. Although 57 percent agreed that study and class preparation should be intensive, 26 percent felt that it should not. Only 2 percent perceived Carleton as not requiring intensive study and preparation. These data suggest that a good number of these nonapplicants perceived Carleton as being neither socially active enough nor sedate enough, as being insufficiently involved in varsity athletics, or as being too serious about academics. Better information about Carleton would probably only have made these students more determined not to apply for admission, but it may very well have increased the desire of the rest to apply.

6. The details of this analysis may be found in Daniel Sullivan, "The Carleton Applicant Pool: An Empirical Study," in Northwest Area Foundation, *Choice or Chance: Planning for Independent College Marketing and Retention*. St. Paul, Minnesota: Northwest Area Foundation, 1976.

In both this nonapplicant study and in the yield study discussed later in this paper, respondents were given a list of sources of information about Carleton and asked to check which ones they had used, which one had been their first source, and which one the most important source. The data are not too revealing except to show that nonapplicants hear about Carleton less often from high school counselors, friends who attended, and admissions representatives and that they hear about Carleton slightly more often from published sources. More interesting is the datum that only 16 percent of the nonapplicants visited the campus whereas 59 percent of the accepted students did, but in general the channels of information to nonapplicants seem to be similar to those for accepted students with the small exceptions noted.

The question of greatest import, of course, remains why the nonapplicants did not apply. The data presented so far seem to indicate that many prospective students in the nonapplicant group should have become applicants. They were academically capable, as well-off financially as accepted students, and largely interested in a college like Carleton. It turns out, however, that Carleton occupies a precarious position in the two markets made up of students from the midwestern and eastern regions, the two areas from which most of Carleton's students come. Carleton is too expensive for many students from the Midwest who like its location and academic reputation. Although Carleton is more affordable to eastern students, it is not held in quite as high esteem as a number of small eastern colleges. In addition, eastern students generally are not attracted to the idea of spending four years in a small town in rural Minnesota.

Table 4 shows the percentage of nonapplicants, by region of residence, who felt Carleton's cost was a negative influence on their desire to apply. As the table shows, eastern nonapplicants rarely found Carleton's cost to be a negative factor whereas almost half of the midwestern applicants did.

Table 5 shows the percentage of nonapplicants, by region of residence, who said that location was a negative factor. Eastern students clearly found Carleton's location to be a negative factor, as did a significant proportion of westerners. In addition, as Table 6 shows, they less frequently found Carleton's academic reputation to be a "very positive" influence on their desire to apply.

These data illustrate Carleton's marginality to the eastern and midwestern markets and point to a clear need to approach students

Table 4. Percentages of Nonapplicants, by Region of Residence, for Whom Cost Was a Negative Influence on Their Desire to Apply

Midwest	47%	(273)
South	36	(70)
West	36	(59)
East	13	(87)

Table 5. Percentages of Nonapplicants, by Region of Residence, for Whom Location Was a Negative Influence on Their Desire to Apply

East	74%	(88)
West	59	(59)
South	48	(71)
Midwest	38	(278)

Table 6. Percentages of Nonapplicants, by Region of Residence, for Whom Carleton's Academic Reputation Was a Very Positive Influence on Their Desire to Apply

Midwest	67%	(278)
South	61	(71)
West	55	(60)
East	43	(87)

making inquiries from those two regions in very different ways. The factors affecting the eastern students' decisions to submit an application clearly differ from those that affect students from the Midwest. Therefore, eastern and midwestern prospective students are two important market *segments*.

Yield Study

Having analyzed why students who have contact with the Carleton admissions process do not apply, let us now turn to a different question: What affects an accepted applicant's decision to enroll or not to enroll? As Table 7 illustrates, slightly less than one-half of Carleton's acceptances choose to enroll. When this yield figure is compared to that of other private liberal arts colleges, it becomes evident that Carleton's yield is neither exceptionally high nor exceptionally low.

If Carleton's yield is not so low, why study what affects it? There are two reasons: If the yield were increased, Carleton could become

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Table 7. Yields in 1974 for Several Private, Liberal Arts Colleges and Universities

Carleton College	48%
Select small colleges:	
Hampshire College	59%
Oberlin College	56
Bowdoin College	53
Middlebury College	50
Haverford College	49
Pomona College	45
Swarthmore College	45
Reed College	43
Antioch College	38
Little Three:	
Amherst College	69%
Williams College	53
Wesleyan College	49
Stanford University	58%
Seven Sisters:	
Radcliffe College	79%
Smith College	51
Wellesley College	50
Vassar College	47
Barnard College	46
Bryn Mawr College	46
Mt. Holyoke College*	
Ivy League:	
Harvard College	87%
Dartmouth College	62†
Pennsylvania State University	55
Yale University	54
Princeton University	52
Brown University	51
Columbia University	50
Cornell University	49

Source: Susan F. Watts, editor, *The College Handbook*. New York: College Entrance Examination Board, 1975.

* Yield data unavailable.

† Yield for 1971 (1974 data unavailable) from Douglas D. Dillenbeck and Sue Wetzel, editors, *The College Handbook*. New York: College Entrance Examination Board, 1972.

a bit more secure in its recruiting position; and by studying what affects yield, various aspects of the admissions process can be evaluated. It was with these two goals in mind that it was decided that all applicants accepted for freshman admission to Carleton in 1974 would be surveyed. Less extensive but similar surveys were also made in 1972 and 1973. The results from these more exploratory studies helped us to focus more sharply on questions of prime concern in our 1974 research.

In order to achieve the greatest possible response, the questionnaire was sent to accepted applicants with the college's letter of notification of acceptance. In fact, the questionnaire was made the vehicle through which an applicant indicated his acceptance or rejection of Carleton's offer of admission. In this way questionnaires were received from 896 or 91 percent of all applicants accepted.

Questionnaires were received from nearly 100 percent of those who accepted the offer of admission. By any standard the overall rate of return was high.

To check for any changes in the factors affecting Carleton's yield, the entire yield study was replicated in 1975. In the 1975 study a total of 946 questionnaires were received, representing 92 percent of acceptances. Where appropriate, therefore, we present two-year comparisons.

Data of several kinds were obtained through the yield study questionnaire: (1) the names of the other colleges to which the student had applied, whether or not he or she was accepted, and if accepted, any financial aid offered; (2) the student's sources of information about Carleton; (3) characteristics of Carleton that were positive and negative factors in the student's decision to enroll; (4) details about the student's campus visit, if any; and (5) the influence of various aspects of the admissions and recruitment process on the student's desire to enroll. Student characteristics (sex, SAT scores, region of residence, socioeconomic background, etc.) were obtained from the admissions file and merged with the data from the yield study questionnaire.

The effect of these classes of variables on yield was examined taking into account whether or not Carleton was the prospective student's first choice. This statistical control procedure was necessary because the ways in which students rank the colleges to which they have applied at the time of application is highly related to the decisions they make after acceptance letters have been received. As Table 8 shows, 84 percent of students accepted at Carleton who said Carleton was their first choice at time of application enrolled at Carleton in the fall of 1974. On the other hand, only 15 percent of the students who were accepted at another school that they specified as their first choice decided to attend Carleton instead. The

Table 8. Effect on Yield of College Preference

	Percentage enrolling at Carleton			
	1974		*1975*	
Carleton first choice	84%	(338)	82%	(387)
Not accepted at first choice	53	(163)	51	(205)
Accepted at first choice which was not Carleton	15	(227)	20	(319)

data for 1975, also shown in Table 8, are quite similar, illustrating one of many examples of great stability of response between the two years.

These data suggest that the best test of effectiveness of certain aspects of the admissions process on yield would be to see how some factor affects yield for those accepted students not designating Carleton as their first choice. Since not all accepted applicants not designating Carleton as their first choice school were, in fact, accepted by their first choice school, an even better test would be to assess the impact of some factor on those who were accepted at their first choice when that was not Carleton.

For convenience, those applicants for whom Carleton was not their first choice and who were not accepted at their first choice school will be called "reluctant recruits." Those who were accepted at their first choice school when that was not Carleton will be called "hard-to-get recruits."

Analysis. The number of analyses performed on these data was quite large, and we need not report them all for the purposes of this paper. Our intent is to illustrate the kinds of findings multivariate analysis can discover and to show the value of trend data in pointing to important changes in the recruitment picture from year to year.

One of the most important areas of concern in the yield study was, of course, the impact of contacts with admissions personnel on yield. Sixty-seven percent of Carleton's accepted applicants in both 1974 and 1975 had had some contact with admissions personnel—either in an interview on the campus or during a high school visit or college night. Accepted applicants were asked the following question: "What influence did a talk with an admissions representative have on your desire to attend Carleton?" Table 9 shows the responses.

By and large, accepted students report being positively influenced

Table 9. Influence of Talk with Admissions Representative on Desire to Attend Carleton for Accepted Students

	1974		*1975*	
Greatly increased desire to attend	30%	(177)	27%	(170)
Slightly increased	39	(235)	44	(280)
No influence	25	(148)	23	(143)
Slightly decreased	5	(28)	5	(31)
Greatly decreased	1	(9)	1	(8)

by admissions personnel (69 percent in 1974 and 71 percent in 1975). Only 6 percent report that their talk with an admissions representative decreased their desire to attend Carleton.

The important question here, however, is whether those who reported being positively influenced by admissions personnel in fact enrolled in greater proportions than those who said that they were negatively influenced. As Table 10 shows, 69 percent of those who said a talk with an admissions person greatly increased their desire to attend Carleton enrolled while only 51 percent of those who said the talk did not increase (combination of "no influence" plus "slightly" and "greatly decreased")[7] their desire to attend in fact enrolled. When acceptances were affected positively by admissions personnel, they were more likely to enroll and vice versa.

The above relationship tends to hold up when prospective students' first-choice institutions are also taken into account, as is shown in Table 11, but it is among the reluctant recruits that the effect is the greatest. When an applicant is turned down by his or her first choice school but accepted by Carleton (making the applicant a reluctant recruit), memory of the talk with one of Carleton's admissions representatives is apparently very important in deciding whether to enroll at Carleton. In 1974 students in this category were 29 percent more likely to enroll at Carleton when their talk with an admissions person greatly increased their desire to

Table 10. Effect on Yield of Talk with Admissions Representative

	Percentage Enrolling at Carleton			
	1974		*1975*	
Greatly increased desire to attend Carleton	69%	(177)	69%	(170)
Slightly increased	61	(233)	58	(245)
No influence or decreased	51	(185)	46	(182)
No contact with admissions representative	44	(170)	49	(279)

7. Because in many instances, including this one, there was a small number of accepted applicants who reported any negative influence, we have combined no influence, slightly decreased, and greatly decreased into one category. While this maneuver tends to understate the effect of a given variable on yield it does preserve our ability to determine the *relative* effect of different elements of the admissions process on yield. It also allows us to make consistent comparisons throughout the paper.

Table 11. Effect on Yield of Talk with Admissions Representative for Each Category of College Preference

Influence of talk with admissions representative on desire to attend Carleton	*Percentage enrolling*											
	Carleton first choice				*Reluctant recruits*				*Hard-to-get recruits*			
	1974		*1975*		*1974*		*1975*		*1974*		*1975*	
Greatly increased desire	92%	(87)	85%	(100)	69%	(29)	74%	(23)	24%	(38)	28%	(39)
Slightly increased	80	(99)	84	(105)	52	(48)	59	(46)	25	(44)	24	(79)
No influence or decreased	82	(73)	72	(74)	40	(30)	36	(42)	14	(51)	21	(62)
No contact	78	(55)	86	(92)	52	(48)	51	(74)	10	(67)	17	(98)

attend than when the talk had no influence or a negative influence. In 1975 the effect was even greater: Reluctant recruits were 38 percent more likely to enroll when they had reacted positively to the admissions contact. These data illustrate the importance of successful admissions contacts, and they illustrate two other very important points as well.

First, as we saw in the nonapplicant study, markets tend to be segmented. That is, the factors most important in influencing a person in one situation to enroll may be quite different from those that are important to another. Looking at the data in its most aggregated form would lead to an overestimation of the importance of admissions contacts for some (Carleton first choice and hard-to-get recruits) and an underestimation of it for others (reluctant recruits).

Second, just talking with an admissions representative does not increase the probability that a student will enroll by very much, though it clearly does make a difference. In 1974 60 percent of accepted applicants who talked with an admissions representative actually enrolled, compared to 44 percent of those who did not have such a talk. For 1975 the comparable figures were 57 percent and 49 percent. This means that an interview is a great *opportunity* for admissions representatives to influence the enrollment behavior of students, but the damage caused by an unsatisfactory interview is as great as the benefits of a satisfactory one. If the

positive effects simply cancel the negative ones, a college could apparently do as well by not interviewing any prospective students.

An equally important aspect of the admissions process is the campus visit. At Carleton, a successful campus visit has an even greater effect on the probability that a student will enroll than a satisfactory meeting with an admissions representative. Without presenting the data, however, let us say that the same caveats apply. The campus visit provides a great opportunity to affect a student's decision, but a disappointing visit has an effect equally as strong as a successful visit. Improvements in yield will certainly occur, given the present situation, if the proportion of accepted applicants who visit the campus increases. But a much greater effect on yield would be obtained by concentrating on increasing the proportion of visits that have a positive effect on applicants.

No yield study would be complete without considering the impact of financial aid and, indirectly, cost. Two kinds of data about financial aid were obtained from accepted students. The first was their response to a question about whether financial aid offered had been a positive or negative influence on their decision to attend Carleton. The second was whether or not aid was in fact offered. Fifty-one percent of the respondents in 1974 indicated that financial aid offered had no effect on their decision to enroll, while 25 percent said that it had a positive effect, and 24 percent said that the effect was negative. The results were almost identical for 1975. As before, however, actual yield rates have to be examined before an effect can be attributed to some factor. As Table 12 shows, the response of acceptances to the financial aid offer, if one was made, does affect yield, and that effect was stable from 1974 to 1975. In addition, the size of the effect remained the same, about 20 percent, for each subgroup when college preference was controlled in the above relationship.

Table 12. Effect on Yield of Reaction to Financial Aid Offer

Reaction to financial aid offer	*Percentage enrolling*			
	1974		*1975*	
Positive	64%	(220)	66%	(263)
No influence	55	(456)	48	(480)
Negative	43	(215)	45	(225)

But the results in Table 12 do not reveal some very real differences in student responses to financial aid that can be observed if a second set of data are examined. Table 13 shows the effect on yield of financial aid actually being offered or not. The data show that in 1974 when aid was not offered when requested, Carleton's chance of enrolling a student was lessened by 26 percent. In 1975 when aid was not offered when requested, Carleton's chance of enrolling the student was lessened by 51 percent. When college preference is controlled the effect of aid offered on yield decreases somewhat, but in each category the effect is strong and is much larger in 1975 than in 1974.

It appears that if Carleton can continue a healthy financial aid policy (note that the number of students denied aid in 1975 was less than half the number denied aid in 1974), its overall yield will probably not be greatly affected by this changed reaction to denials of aid. But Carleton can no longer expect a significant proportion of students who are denied aid to enroll. One note of caution, however. The above interpretation is *ceteris paribus* ("other things being equal"). We do not know the details of the situation in each case and have therefore assumed that the ability to pay of the "requested, not offered" group in both years was about the same. Such may not be the case, and if not, a very different interpretation of Table 13 might result. Table 13 should be viewed as a red flag alerting us to a possible problem, and it shows the value of collecting a basic set of data such as these as an ongoing part of the admissions and recruitment program.

Analyses were also made of the role parents and high school counselors play in the enrollment decisions of accepted students. The notion of a "generation gap" may have made it tempting for some admissions people to assume that parents no longer have much influence on the decisions of their children about college choice, but our data show just the opposite pattern. In both 1974 and 1975, as Table 14 shows, parents' reaction to Carleton had a

Table 13. Effect on Yield of Financial Aid Offer

	Percentage enrolling			
	1974		*1975*	
Aid offered	63%	(320)	64%	(462)
No aid requested	53	(452)	45	(429)
Aid requested but not offered	37	(119)	13	(55)

Table 14. Effect on Yield of Influence of Parents on Desire to Attend Carleton

Influence of parents on desire to attend Carleton	*Percentage enrolling*			
	1974		*1975*	
Greatly increased desire to attend	77%	(135)	73%	(168)
Slightly increased	65	(265)	63	(312)
No influence or decreased	41	(275)	42	(333)

great effect on the probability that their children would enroll. This was true even when prospective students' first-choice institutions were taken into consideration. Therefore, parents should not be forgotten in any marketing strategy.

The role of high school counselors is much more ambiguous, however. At best the impact of counselors on yield appears to be marginal. That is, when other factors do not tip the balance in one direction or another, the reaction of the high school counselor to Carleton may be important. That was the conclusion we drew upon examination of data from our 1974 yield study, shown in Table 15. When Carleton was a student's first choice, the reaction of the high school counselor mattered not at all in his or her decision to enroll or not. When Carleton was not the student's first choice, and especially when a student had been rejected by his or her first choice, the reaction of the high school counselor became very important.

Table 15. Effect on Yield of Influence of High School Counselor for Each Category of College Preference

Influence of high school counselor on desire to attend Carleton	*Percentage enrolling*											
	Carleton first choice				*Reluctant recruits*				*Hard-to-get recruits*			
	1974		*1975*		*1974*		*1975*		*1974*		*1975*	
Greatly increased desire	89%	(27)	79%	(34)	77%	(22)	54%	(20)	35%	(20)	9%	(22)
Slightly increased	83	(64)	87	(77)	61	(33)	50	(44)	11	(44)	26	(57)
No influence or decreased	83	(154)	79	(175)	52	(64)	57	(81)	14	(93)	23	(109)

The data for 1975 showed a very different pattern, however. For no group was the reaction of the high school counselor especially important, and for the "hard-to-get" recruits the direction of the impact was reversed. On the basis of these data it would not seem worthwhile to intensify efforts to influence the reaction of high school counselors toward Carleton.

A final illustration of the kinds of things that can be learned from research such as this is related to another aspect of Kotler's market audit: knowing who the competitors are and where your institution ranks relative to them. An analysis of where students choose to enroll when accepted both by your institution and by one of your competitors is sobering, yet necessary. Admissions directors have called this an analysis of "overlaps" and have traditionally collected data on where students who declined to enroll at their institution did in fact enroll. The names of other schools at which enrolled students were also accepted but did not attend are much less often collected, but these data are essential for a complete analysis. Table 16 shows an overlap analysis for students accepted by Carleton in 1974. In order to avoid invidious comparisons the names of the institutions in each category are omitted. Institutions of similar types were grouped together for this analysis, and it is plain that Carleton competes extremely well with some kinds of institutions and much less well with others. Any realistic strategy for improving the market position of an institution must be based on accurate information about what its present competitive position really is.

Table 16. Percentage Enrolled at Carleton and Its Competitors in 1974 When Applicants Were Accepted by Both

	Competitors	*Carleton*
Group 1 institutions	26% (34)	74% (96)
Group 2	32 (19)	68 (40)
Group 3	41 (7)	59 (10)
Group 4	41 (9)	59 (13)
Group 5	70 (55)	30 (24)
Group 6	71 (10)	29 (4)
Group 7	86 (24)	14 (4)
Group 8	86 (55)	14 (9)
Group 9	95 (19)	5 (1)

Conclusion

The analyses presented in this paper, representing just a sample of the many that were completed, are intended to illustrate one approach to the completion of a systematic marketing audit. These studies of the determinants of two important student transitions (from inquirer to applicant, and from accepted applicant to enrollee) dealt only with a portion of the whole recruitment process, but until recently it was hard to obtain data bearing on other transitions. The population of prospective students who made inquiries and the population of accepted applicants to Carleton were well-known groups. It was therefore easy to ask them to participate in our research. But what is the population of potential inquirers and how can it be sampled? The recently established College Board Student Search Service makes it possible to define and contact a population of students with characteristics that might make them attractive candidates for admission. Some percentage of this group of Student Search Service contacts make inquiries. All of these students making inquiries could be studied as well as a sample of Student Search Service contacts who did not follow up with an inquiry. It is now possible, therefore, to study the determinants of this contact-to-inquiry transition.

This paper is, of course, not the proper vehicle for learning either the methodology of market research or the specifics of research designs that would be appropriate without modification for colleges other than Carleton, but as a partial aid the questionnaires used in the studies reported here are included at the end of this paper. The purpose of the paper, rather, was to show that Carleton's markets, and probably the markets of most other colleges, are segmented, requiring a differentiated marketing strategy. Local research is required to learn the specific lines of segmentation.

A second purpose of the paper was to illustrate the sorts of things that can be learned from an evaluation of the recruitment process. What categories of people influence the decisions of prospective students? What kinds of official recruitment activities seem to have an effect? Are the results stable from year to year? Do new policies or approaches have perceptible impacts? Analyses such as these, we argue, make better management and control of recruitment possible without a large financial investment.

We claimed earlier that useful market research does not have to be prohibitively expensive, and so the reader may be curious about

how much the studies reported here cost. Real costs are very difficult to determine and are always much larger than researchers would like to admit, but marginal costs are easily available and should be a fair reflection of the additional investment necessary to undertake research such as that described here. Real costs would include factors for overhead, salaries, computing, and a whole host of other items. Marginal costs are those not already being taken care of under other arrangements, and at Carleton these costs were small. Admissions research done in 1972 and 1973 was conducted at an annual marginal cost of less than $2,000. In 1974 Carleton received a grant from the Northwest Area Foundation, and $6,000 of this money was allocated for admissions research. This money enabled one of the authors to spend an entire summer on the research, funded a student assistant, and took care of mailing costs for the nonapplicant study. In 1975 the marginal cost of the yield study replication was less than $2,000. Mailing and other clerical expenses were kept down because the yield study questionnaire was also the document that students used to notify Carleton of their enrollment decisions.

In concluding, we offer a word of caution. Market research is not a panacea. Used appropriately, however, it is a tool of much potential value which in the long run should pay off in better decisions that enhance the health of the institution.

Appendix.
1974 Nonapplicant Study Questionnaire and 1975 Yield Questionnaire

CARLETON COLLEGE

NORTHFIELD, MINNESOTA

OFFICE OF ADMISSIONS

May 1974

Dear Student:

During the past year, we have had contact with thousands of high school students who expressed an interest in Carleton. Many of these students applied for admission, but many others did not. In an effort to analyze and evaluate our admissions program and materials, we are asking a number of those students who did not seek admission to complete this questionnaire and return it to us. Since the sample we have drawn is relatively small, each response is important to us, and I hope you will take the time to complete this form and return it to me within the next few days.

Although your responses will be both anonymous and confidential, please feel free to omit any items which you would prefer not to answer. I hope to receive your response soon, and I thank you for your cooperation.

Sincerely,

Paul M. Garman
Director of Admissions

In each of the following questions circle the appropriate code number or fill in the blanks.

1. Did you apply to college during the past year?
1 Yes 2 No

IF YES TO QUESTION #1, PLEASE COMPLETE THE REMAINDER OF THE QUESTIONNAIRE. IF NO TO QUESTION #1, PLEASE RETURN THE QUESTIONNAIRE AS IS.

2. Your sex: 1 Male 2 Female

3. What is the highest academic degree that you intend to obtain?
1. None
2. Associate (A.A. or equivalent)
3. Bachelor's degree (B.A., B.S., etc.)
4. Master's degree (M.A., M.S., etc.)
5. Ph.D. or Ed.D.
6. M.D., D.O., D.D.S., or D.V.M.
7. LL.B. or J.D. (Law)
8. B.D. or M. Div. (Divinity)
9. Other

4. Please list the colleges to which you applied? (Show first, second, and subsequent choices.)
First Choice: _____
Second Choice: _____
Third Choice: _____
Fourth Choice: _____
Fifth Choice: _____

4A. Place an X next to the name of the college which you are planning to attend.

5. From what kind of high school will you graduate?
1. Public
2. Private (denominational)
3. Private (nondenominational)
4. Other

6. What was your average grade in high school?

1. A or A+	5. B-
2. A-	6. C+
3. B+	7. C
4. B	8. D

7. Did you take the Scholastic Aptitude Tests?
   1. No
   2. Yes (Please write your scores below)
      Verbal _____
      Mathematics _____

8. What is the size of your high school graduating class? (If you don't know exactly, give your best approximation)

_____

9. What was your rank in the senior class? (If you don't know exactly, give your best estimate) _____

10. Do you have any concern about your ability to finance your college education?
   1. None (I am confident that I will have sufficient funds)
   2. Some concern (But I will probably have enough funds)
   3. Major concern (Not sure I will have enough funds to complete college)

11. What is your **best estimate** of the total income last year of your parents (not your own family, if you are married)? Consider annual income from all sources before taxes.

1. Less than $3,000	8. $15,000-$19,999
2. $3,000-$3,999	9. $20,000-$24,999
3. $4,000-$5,999	10. $25,000-$29,999
4. $6,000-$7,999	11. $30,000-$34,999
5. $8,000-$9,999	12. $35,000-$39,999
6. $10,000-$12,499	13. $40,000-$49,999
7. $12,500-$14,999	14. $50,000 or more

12. What is the highest level of formal education obtained by your parents? (Circle one code in each column)

	FATHER	MOTHER
Grammar school or less	1	1
Some high school	2	2
High school graduate	3	3
Some college	4	4
College degree	5	5
Some graduate school	6	6
Graduate degree	7	7

13. If one or both of your parents attended college, what type of college did each attend? (Circle one code for each column)

	FATHER	MOTHER
Junior College or two-year community college	1	1
Private liberal arts college (nondenominational)	2	2
Private liberal arts college (denominational)	3	3
Private university (nondenominational)	4	4
Private university (denominational)	5	5
Public college or university	6	6
Other	7	7
Did not attend college	8	8

14. Current religious preference: (Write one code number in each blank)
   1. Baptist
   2. Congregational (U.C.C.)
   3. Eastern Orthodox
   4. Episcopal
   5. Jewish
   6. Latter Day Saints (Mormon)
   7. Lutheran
   8. Methodist
   9. Muslim
   10. Presbyterian
   11. Quaker (Society of Friends)
   12. Roman Catholic
   13. Seventh Day Adventist
   14. Unitarian-Universalist
   15. Other Protestant
   16. Other religion
   17. None

   Yours _____
   Father _____
   Mother _____

15. How often do you attend religious services?
   1. At least once a week
   2. At least once a month
   3. Several times a year
   4. About once a year
   5. Hardly ever
   6. Never

16. Do you consider yourself:
   1. Strongly religious
   2. Moderately religious
   3. Weakly religious
   4. Not at all religious

17. How would you characterize your political views and those of your parents? (Circle one code in each column)

	YOURS	PARENTS
Far left	1	1
Liberal	2	2
Middle of the road	3	3
Conservative	4	4
Far Right	5	5

18. Are you: (Circle one code)
   1. White/Caucasian
   2. Black/Negro/Afro-American
   3. American Indian
   4. Oriental
   5. Mexican-American-Chicano
   6. Puerto Rican-American
   7. Other

Information About Your Selection of a College

19. What is your most likely major in college?

_____

20. Below is a list of common sources of information about a college. With respect both to Carleton and to the college you plan to attend, place a "1" next to any sources which impressed you favorably, a "2" next to any sources which impressed you unfavorably, and a "3" next to any sources from which you received no information.

1. Impressed me favorably
2. Impressed me unfavorably
3. No information from this source

	CARLETON	YOUR COLLEGE
a. High school counselor		
b. A teacher		
c. A parent		
d. A friend who attends or attended		
e. Another friend		
f. A relative who attended		
g. A college publication		
h. An admissions representative		
i. An alumni representative		
j. A college guide or handbook (i.e., Barron's)		
k. Other (please specify)		

20A. Through what source did you first hear about Carleton? your college? (Write in the appropriate letter)

_____ Carleton
_____ The college you plan to attend

20B. Which source of information was most important for your decision not to apply to Carleton? to attend the college of your choice? (Write in the appropriate letter)

_____ Carleton
_____ The college you plan to attend

21. Did you visit Carleton?

1. No (Go to Question 22)
2. Yes (Answer 21A, 21B, and 21C)

21A. When did you visit?

1. During Carleton academic year
2. During Carleton vacation
3. Both

21.B. How did the following aspects of Carleton impress you during your visit?

	POSITIVE	NEUTRAL	NEGATIVE	DOESN'T APPLY
1. Campus	1	2	3	4
2. Atmosphere	1	2	3	4
3. Students	1	2	3	4
4. Facilities	1	2	3	4
5. Faculty	1	2	3	4
6. Location	1	2	3	4
7. Admissions interview	1	2	3	4
8. Admissions personnel	1	2	3	4
9. Housing	1	2	3	4

21C. If you circled negative for any of the above aspects of your visit, would you elaborate here on what was negative?

_____

_____

22. Did you visit with someone from the Carleton Admissions Office in your high school or at a College Night or similar meeting?

1. Yes
2. No

22A. If yes, what impression did this contact make on you?

_____

_____

23. Did you talk with a Carleton Alumni Representative* at any time during the past year?

1. No (Go to Question 24)
2. Yes (Please answer 23A)

23A. What form did this contact take? (Circle code for all that apply)

1. Telephone call
2. Personal visit at your home
3. Personal visit at your school
4. Party or gathering at home of Alumni Representative
5. Other (Please specify)

_____

24. What influence did the following have on your desire to apply to Carleton? (Circle the number after each influence)

	VERY POSITIVE	SOMEWHAT POSITIVE	NO INFLUENCE	SOMEWHAT NEGATIVE	VERY NEGATIVE	DOES NOT APPLY
Size of the college	1	2	3	4	5	6
Location	1	2	3	4	5	6
Academic reputation	1	2	3	4	5	6
Coeducational	1	2	3	4	5	6
Coeducational housing	1	2	3	4	5	6
Presence of multiple living options	1	2	3	4	5	6
Talks with other friends	1	2	3	4	5	6
Talk with a friend attending Carleton	1	2	3	4	5	6
A particular department, major, set of courses, off-campus program, etc.	1	2	3	4	5	6
Cost	1	2	3	4	5	6
Relatives or alumni who attended	1	2	3	4	5	6
Catalogue	1	2	3	4	5	6
Other printed materials	1	2	3	4	5	6
Campus visit	1	2	3	4	5	6
Talk with admissions representative	1	2	3	4	5	6
Talk with alumni representative	1	2	3	4	5	6
Your high school counselor	1	2	3	4	5	6
Present Carleton students	1	2	3	4	5	6
Parent(s)	1	2	3	4	5	6
Other (please specify) _____	1	2	3	4	5	6

24A. **Place an X** to the left of the factor most important in your decision not to apply to Carleton.

*Alumni Representatives are volunteer alums who help us contact students. They are not the people referred to in Q22, who are paid staff members of Carleton College.

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25. Below is a set of statements that may or may not apply to you. Circle the number which most closely reflects your reaction to each.

1 Not at all like my attitude
2 Not very much like my attitude
3 Reflects my attitude somewhat
4 Closely reflects my attitude

I learn best when the instructor's lecture closely follows the assigned readings	1	2	3	4
I am primarily interested in a specialized area of learning that relates directly to my intended career	1	2	3	4
I spend a lot of time just thinking about how things I have learned go together	1	2	3	4
I would rather spend an evening with a friend or two than attend a planned social event	1	2	3	4
College students should become meaningfully involved in correcting the injustices of our society	1	2	3	4
I like courses in which I can do independent projects and original research	1	2	3	4
I like courses in which my teachers give explicit instructions	1	2	3	4
In the ideal college or university, there would be no grades	1	2	3	4
I consider many viewpoints on a given topic and think about what if anything they all have in common	1	2	3	4
Extracurricular activities such as clubs, interest groups, etc., are an important aspect of college for me	1	2	3	4
Without grades, I would find it difficult to assess my intellectual abilities	1	2	3	4
I would support and participate in a student lobby group which works for socio-political change off campus	1	2	3	4
A student's grade is a pretty good indicator of what he has gotten out of a course	1	2	3	4
The best way to learn something is to complete course assignments and do the required reading	1	2	3	4

26. In this question we would like to explore your perceptions of Carleton, the college you plan to attend, and the, perhaps, fictional college that you feel would be ideal for you. For each item below indicate your agreement, disagreement or indecision by **writing in the number** which you feel applies best to Carleton, the college you are attending, and your ideal college.

1 Agree 2. Don't know 3. Disagree

	CARLETON	YOUR COLLEGE	IDEAL COLLEGE
Dances, parties and social activities are very frequent			
Education here helps make the students become more practical and realistic			
The natural science departments have excellent laboratories			
For most courses learning just what is in the text is enough to pass			
The students have a strong desire to achieve academically			
Professors challenge students to perform at their best			
Students commonly have intensive intellectual discussions with each other			
This college is a very friendly place			
The college is very conscious of its history and traditions			
Painting, music, poetry, sculpture, and architecture are of great interest to a lot of people at this college			
The social sciences faculty and courses have an outstanding reputation			
Drunkenness and disorderliness among students are rare			
There is a toleration of drinking and late parties			
The courses tend toward the abstract and speculative as opposed to the concrete and tangible			
Most students are involved in intramural sports and informal athletic activities			
Many practical courses are taught			
At this college everybody seems to have fun			
The student who works for high grades is seen as strange			
Intensive out of class preparation and intensive study are required for most courses			
The natural science faculty and courses are outstanding			
Students have the freedom to work out their own programs			
Intercollegiate athletics are very important			
Strong beliefs or convictions are rarely expressed			
The faculty has many colorful and controversial members			
Students prefer spontaneous social activities to ones that are planned			

27. Please use a separate sheet to amplify any response to the above or to tell us any other factors which influenced your decision not to apply.

CARLETON COLLEGE
CANDIDATE'S REPLY FORM

Name _____ Date _____

_____ I accept admission to Carleton. My $100 deposit is enclosed.

_____ I decline admission to Carleton. I intend to enroll at _____.

Please help us evaluate our admissions process by completing both sides of this form.

1. List the colleges to which you applied, including Carleton, IN THE ORDER OF YOUR PREFERENCE AT THE TIME YOU APPLIED and whether you were accepted at each of the other colleges. For each college by which your application was approved, please enter the amount of aid, if any, offered.

Name of college	Accepted?	Scholarship	Loan	Work
(1)_____	_____	$_____	$_____	$_____
(2)_____	_____	$_____	$_____	$_____
(3)_____	_____	$_____	$_____	$_____
(4)_____	_____	$_____	$_____	$_____

2. Below are sources of information about college. For those which provided you with information about Carleton, please rate them according to how they influenced your desire to attend Carleton (circle a code in columns 1-5). Circle the code X for those sources from which you did not receive information.

	1. Greatly Increased	2. Slightly Increased	3. No Influence	4. Slightly Decreased	5. Greatly Decreased	6. No Information from this source
Catalog	1	2	3	4	5	X
Other Carleton printed materials	1	2	3	4	5	X
Campus visit	1	2	3	4	5	X
Talk with Admissions Representative:						
At your high school	1	2	3	4	5	X
At a college fair	1	2	3	4	5	X
On campus	1	2	3	4	5	X
Elsewhere	1	2	3	4	5	X
Talk with Alumni Representative	1	2	3	4	5	X
Other Alumni	1	2	3	4	5	X
Your high school counselor	1	2	3	4	5	X
A teacher at high school	1	2	3	4	5	X
Present Carleton Student(s)	1	2	3	4	5	X
Friend(s)	1	2	3	4	5	X
Parent(s)	1	2	3	4	5	X
College Guide(s) or Handbook(s)	1	2	3	4	5	X

Which one(s)?_____

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3. We are interested in learning more about the characteristics which differentiate the colleges to which our applicants apply and the characteristics on which colleges don't seem to differ much. In Column A, please rate Carleton on each of the following characteristics. If you are planning to attend Carleton, in Column B please rate the college at which you were accepted which you would most likely have attended had you not chosen Carleton. If you are planning to attend a college other than Carleton, please rate that college in Column B. Circle one code in each column for each characteristic; omit any item for which you have inadequate information.

		A. Carleton			B. 2nd Choice OR College Attending		
		Poor	Good	Very Good	Poor	Good	Very Good
A.	The Admissions Process	1	2	3	7	8	9
B.	Student/Faculty Ratio	1	2	3	7	8	9
C.	Quality of the Library	1	2	3	7	8	9
D.	Racial/Ethnic Diversity	1	2	3	7	8	9
E.	Academic Quality	1	2	3	7	8	9
F.	Distance from Home	1	2	3	7	8	9
G.	Financial Aid Offer	1	2	3	7	8	9
H.	Graduate/Professional School Acceptance Rate	1	2	3	7	8	9
I.	Off-campus Study Programs	1	2	3	7	8	9
J.	Music Opportunities	1	2	3	7	8	9
K.	Varsity Athletics	1	2	3	7	8	9
L.	Diversity of Residential Options	1	2	3	7	8	9
M.	Policy on Student Cars	1	2	3	7	8	9
N.	General Education Emphasis (e.g., proficiency and distribution requirements)	1	2	3	7	8	9
O.	Opportunity to Develop Special Major	1	2	3	7	8	9
P.	Quality of Faculty	1	2	3	7	8	9
Q.	Computer Facilities	1	2	3	7	8	9
R.	Particular Department(s) or Major(s) in which you are Interested; (specify) _____	1	2	3	7	8	9
	_____	1	2	3	7	8	9
S.	Social Atmosphere	1	2	3	7	8	9
T.	Urban/rural Location	1	2	3	7	8	9
U.	Geographical Location	1	2	3	7	8	9
V.	Size	1	2	3	7	8	9
W.	Coeducation	1	2	3	7	8	9
X.	Cost	1	2	3	7	8	9
Y.	Other (specify) _____	1	2	3	7	8	9
	_____	1	2	3	7	8	9

Below please indicate, in the order of their importance, up to three characteristics which most differentiated Carleton and the other college which you rated and which influenced your choice. Use the letters from above.

First _____ Second _____ Third _____

4. Please make any comments or suggestions you wish concerning our admissions process or procedures. We are particularly interested in suggestions for improvements which you might have.